



United States  
Department of  
Agriculture

Forest  
Service

June 2018



# **Draft Revised Forest Plan Appendices**

## **Helena - Lewis and Clark National Forest**

Appendix A. Monitoring Program

Appendix B. Maps

Appendix C. Potential Management Approaches and Possible Actions

Appendix D. Vegetation Classifications and Descriptions

Appendix E. Priority Watersheds

Appendix F. Evaluation of Wilderness Inventory Areas

Appendix G. Wild and Scenic Rivers Eligibility Study Process

Appendix H. Northern Rockies Lynx Management Direction Record of  
Decision

Appendix I. Forest Plan Amendments – Incorporating Habitat  
Management Direction for the Northern Continental Divide  
Ecosystem Grizzly Bear Population

Appendix J. Scenic Character Descriptions

Appendix K. Revised Forest Plan Readers Guide

Page intentionally left blank.

# Appendix A. Monitoring Program

## Table of Contents

<b><i>Introduction .....</i></b>	<b><i>1</i></b>
Required 2012 Planning Rule Monitoring Items.....	2
Focal Species .....	3
<b><i>Monitoring Elements by Resource Area.....</i></b>	<b><i>4</i></b>
Aquatic Ecosystems – Watershed (WTR) .....	4
Aquatic Ecosystems – Fisheries and Aquatic Habitat (FAH) .....	5
Aquatic Ecosystems – Riparian Management Zones (RMZ) .....	5
Soils (SOIL) .....	6
Air Quality (AIR) .....	6
Fire and Fuels Management (FIRE) .....	6
Vegetation – Terrestrial (VEGT).....	8
Vegetation – Forested (VEGF) .....	9
Vegetation – Nonforested (VEGNF) .....	10
Vegetation – Plant Species at Risk (PRISK).....	11
Vegetation – Invasive Plants (INV) .....	12
Wildlife (WL) .....	13
Recreation Settings (ROS) .....	14
Recreation Opportunities (REC) .....	15
Recreation Special Uses (RSUP).....	16
Scenic Character (SCENERY) .....	16
Designated Areas .....	16
Cultural and Historic Resources (CR) and Areas of Tribal Importance (TRIBAL).....	18
Land Status and Ownership (LAND) and Land Uses (LAND USE) .....	18
Infrastructure – Roads and Trails (RT), Bridges (BRDG), and Facilities (FAC) .....	19
Benefits to People –Public Information, Interpretation, and Education (CONNECT) .....	19
Benefits to People – Livestock Grazing (GRAZ).....	20
Benefits to People – Timber (TIM).....	20
Benefits to People – Other Forest Products and Wood for Fuel (OFP).....	21
Benefits to People – Fish and Wildlife (FWL) .....	22

Page intentionally left blank.



## Introduction

The monitoring program includes monitoring, or the collection of data and information, followed by the evaluation of that information. Monitoring and evaluation are separate, sequential activities required by the National Forest Management Act to determine how well objectives have been met and how closely management standards and guidelines have been applied. Effective land management plan monitoring fosters adaptive management and more informed decisions.

Monitoring and evaluation are conducted at several scales and for many purposes, each of which has different objectives and requirements. Monitoring occurs at the scale of the Forest, the Region, and even larger areas. Monitoring may be the responsibility of the Forest Service, another agency, or may involve multiple agencies and organizations.

Monitoring provides the feedback for the forest planning cycle by testing assumptions, tracking relevant conditions over time, measuring management effectiveness, and evaluating effects of management practices. Monitoring information should enable the Forest to determine if a change in plan components or other plan management guidance may be needed, forming a basis for continual improvement and adaptive management. Direction for the monitoring and evaluation of forest plans is found under the 2012 planning rule at 36 Code of Federal Regulations 219.12 and in the directives at 1909.12 Chapter 30.

The plan monitoring program addresses the most critical components for informed management of the Forest's resources within the financial and technical capability of the agency. Every monitoring question links to one or more desired conditions, objectives, standards, or guidelines. However, not every plan component has a corresponding monitoring question.

The monitoring program is not intended to depict all monitoring, inventorying, and data gathering activities undertaken on the Forest. Consideration and coordination with broad-scale monitoring strategies, multi-party monitoring collaboration, and cooperation with state agencies where practicable will increase efficiencies and help track changing conditions beyond the forest boundaries to improve the effectiveness of the plan monitoring program. In addition, project and activity monitoring may be used to gather information for the plan monitoring program if it will provide relevant information to inform adaptive management. Monitoring also provides feedback to prioritize and improve the plan monitoring program and broader-scale monitoring strategy.

The monitoring plan sets out the plan monitoring questions and associated indicators and measures. The Forest used the best available scientific information in the development of the monitoring plan, giving consideration to expected budgets and agency protocols.

The monitoring program will include a monitoring guide and a biennial monitoring evaluation report. The monitoring guide will provide detailed information on the monitoring questions, indicators, frequency and reliability, priority, data sources and storage, and cost. Data sources and frequency of updates may change, so the specifics will be included in a monitoring guide. It is important to note that not all monitoring questions are expected to be evaluated biennially.

The biennial monitoring evaluation report will summarize the results of monitoring, evaluate the data, consider relevant information from broad-scale or other monitoring efforts, and make recommendations to the responsible official. The monitoring evaluation report will indicate whether or not a change to the Forest Plan, management activities, or the monitoring program, or a new assessment, may be warranted based on the new information. The monitoring evaluation report is used to inform adaptive management of the plan area and will be made available to the public.

Some kinds of monitoring indicators will require longer time frames for thorough evaluation of results, but a biennial review of what information has been collected will ensure timely evaluation to inform planning. The biennial monitoring evaluation does not need to evaluate all questions or indicators on a biennial basis but must focus on new data and results that provide new information regarding management effectiveness, progress towards meeting desired conditions or objectives, changing conditions, or validation (or invalidation) of assumptions.

Modifying a plan's monitoring program does not require any other change to the plan; that is, a plan need not be amended nor revised simply to facilitate monitoring pursuant to the Rule.

A change to a monitoring question or an indicator may be made administratively, but only after the public has had an opportunity to comment. A change to a monitoring guide or annual monitoring work plan does not require public notification. In addition, because the broader-scale monitoring strategy is comprised of questions and indicators from plan monitoring programs, a change of the broader-scale monitoring strategy questions and indicators would require a change of the relevant plan monitoring programs.

## Required 2012 Planning Rule Monitoring Items

The Forest Service has discretion to set the scope, scale, and priorities for plan monitoring within the financial and technical capabilities of the administrative unit. However, they are required to include one or more monitoring question(s) and associated indicator(s) for the eight items set out in the Planning Rule at 36 CFR 219.12(a)(5) as follows:

- i. The status of select watershed conditions.
- ii. The status of select ecological conditions including key characteristics of terrestrial and aquatic ecosystems.
- iii. The status of focal species to assess the ecological conditions required under 36 CFR 219.9.
- iv. The status of a select set of the ecological conditions required under 36 CFR 219.9 to contribute to the recovery of federally listed threatened and endangered species, conserve proposed and candidate species, and maintain a viable population of each species of conservation concern.
- v. The status of visitor use, visitor satisfaction, and progress toward meeting recreation objectives.
- vi. Measurable changes on the plan area related to climate change and other stressors that may be affecting the plan area.
- vii. Progress toward meeting the desired conditions and objectives in the plan, including providing for multiple use opportunities.
- viii. The effects of each management system to determine that they do not substantially and permanently impair the productivity of the land (16 U.S.C. 1604(g)(3)(C)). (36 CFR 219.12(a).

Social, economic, and cultural sustainability must also be addressed in the monitoring program (FSH 1909.12 Section 32.13f).

The following was also considered to help determine the need to track information related to the plan components.

1. Required by law – collection of information is required through Biological Opinion Terms and Conditions, court orders, settlement agreements, etc.
2. Magnitude of departure from desired condition (if of concern) - Is there a high degree of disparity between existing and desired conditions? Examples: (1) a particular habitat component is at a much lower level than desired; (2) the amount of use of a particular resource or use at a particular location is much higher than desired.
3. Degree of uncertainty regarding the available data or uncertainty due to lack of data (FSH 1909.12 Section 32.1, 32.11). Is available information incomplete or inconclusive?
4. Long standing management assumptions that need to be verified or re-verified? (FSH 1909.12 Section 32.1, 32.11). Is there a high degree of uncertainty associated with management assumptions? Examples: (1) a new way of doing something where there is limited experience with the new technique; (2) actions taken in response to an unprecedented situation; (3) a lack of information or out dated information on the effects of a management action on specific habitat needs
5. The risk and consequences to the resource for not having information to reduce the uncertainty/knowledge gap/assumption.
  - i. Risk of action/event occurring - Are management activities AND/OR other drivers and stressors (climate change, invasives, insect diseases, flooding events, etc.) likely to occur that would have discernable outcomes to the resource? Is the parameter responsive to changed conditions (climate, insect/disease, invasives, management activities, etc.?)
  - ii. Consequences to resource – What are consequences to resource for not having this information? I.e. collection of this information will make a difference in how we manage for sustainability of the resource.
6. Distinctive roles and contributions within the broader landscape (FSH 1909.12 Sec. 32.1). Will monitoring respond to a key public issue? Key issues identified through scoping may warrant monitoring even if they are (1) well understood, (2) the existing condition is good and (3) management activities will have little impact. Monitoring may be necessary for educational and/or accountability purposes.

## Focal Species

The following focal species have been identified for the HLC NF. Monitoring for these species is indicated in the applicable resource monitoring sections.

- Limber pine (*Pinus flexilis*)
- Westslope cutthroat trout (*Oncorhynchus clarki lewisi*)

## Monitoring Elements by Resource Area

### Aquatic Ecosystems – Watershed (WTR)

**Table 1. Aquatic Ecosystems – Watershed (WTR), Fisheries and Aquatic Habitat (FAH), RMZ, CWN**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-WTR-DC-01; FW-WTR-DC-03; FW-WTR-DC-07 ; FW-WTR-DC-09; FW-WTR-DC-11; FW-WTR-DC-12; FW-FAH-DC-01; FW-FAH-DC-02; FW-FAH-DC-03; FW-FAH-DC-05; FW-FAH-DC-07; FW-FAH-DC-08; FW-RMZ-DC-01, FW-RMZ-DC-02</b>	<b>MON-WTR-01</b> What is the trend in instream physical characteristics for managed watersheds as compared to unmanaged?	<b>Instream Physical Habitat</b> <ul style="list-style-type: none"> <li><i>Pools, woody debris, bank angle, channel substrate, D50, Aquatic invertebrates</i></li> </ul>	PIBO (5 years)
<b>FW-WTR-DC-04 FW-WTR-STD-03; FW-RMZ-STD-01; FW-RMZ-STD-02</b>	<b>MON-WTR-02</b> What BMPs are implemented in wetlands in order to not impede the sustainability of wetland characteristics and diversity?	<b>BMP implementation for projects with wetlands</b> <ul style="list-style-type: none"> <li><i># and types of BMPs implemented</i></li> <li><i>Quality at which the BMP are implemented</i></li> </ul>	Supervisor's Office Records PALS National BMP database; Bi-Annual State BMP review (5 years)
<b>FW-WTR-DC-05; FW-WTR-DC-06; FW-WTR-DC-07</b>	<b>MON-WTR-03</b> What is the status of 303 and 305 State listed streams?	<b>State listed stream segments Forestwide and by Conservation Watershed Network</b> <ul style="list-style-type: none"> <li><i># and locations stream reaches on 303 and 305 list</i></li> <li><i>Acres, miles, and types of actions that improve the reasons for which the stream reach was listed</i></li> <li><i>MT State assessment of Beneficial Uses status (fully supporting, not fully supporting, threatened) for each listed stream segment</i></li> </ul>	MT State 303d and 305b integrated report  (annual)
<b>FW-WTR-OBJ-01</b>	<b>MON-WTR-04</b> How many restoration projects were completed in priority watersheds?	<b>Restoration projects completed in priority watersheds.</b>	WCF (5 years)
<b>FW-WTR-OBJ-02</b>	<b>MON-WTR-05</b> How many acres of restoration occurred in priority watersheds?	<b>Acres of restoration in priority watersheds.</b>	WCF (Annual)
<b>FW-CWN-DC-01; FW-FAH-OBJ-01; FW-FAH-OBJ-02; FW-CWN-OBJ-01; FW-CWN-OBJ-02; FW-WTR-GDL-04</b>	<b>MON-WTR-06</b> What stream habitat improvement actions have occurred?	<b>Stream Habitat Improvements</b> <ul style="list-style-type: none"> <li><i>Miles, types, and locations of stream habitat improvements</i></li> </ul>	WIT  (Annual)

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-CWN-GDL-01; FW-CWN-GDL-02</b>	<b>MON-WTR-7</b> What road and access improvements have been completed in Conservation Watershed Network areas?	<b>Road Management in Watershed Conservation Networks</b> <ul style="list-style-type: none"> <li>• #, types, miles or road management actions/decisions in Watershed Conservation Network</li> </ul>	INFRA WIT  (5 years)

## Aquatic Ecosystems – Fisheries and Aquatic Habitat (FAH)

**Table 2. Aquatic Ecosystems – Fisheries and Aquatic Habitat (FAH)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-FAH-DC-01</b> <b>FW-FAH-DC-04</b> <b>FW-FAH-DC-05</b> <b>FW-FAH-DC-08</b>	<b>MON-FOCAL-01</b> What is the status of WCT Focal species?	Presence and abundance of genetically pure westslope cutthroat trout populations <ul style="list-style-type: none"> <li>• Number of fish/mile, or miles of occupied stream reaches</li> </ul>	Montana FWP Database (5-10 years)
<b>FW-RT-STD-02; FW-RT-STD-03;</b> <b>FW-RT-STD-04; FW-BRDG-DC-01</b>	<b>MON-FAH-01</b> Are culverts and bridges being constructed to these directions?	Number of culverts and bridges that meet standards	FACTS WIT (5 years)

## Aquatic Ecosystems – Riparian Management Zones (RMZ)

**Table 3. Aquatic Ecosystems – Riparian Management Zones (RMZ)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-RMZ-OBJ-01</b>	<b>MON-RMZ-01</b> How many acres of riparian management zones have been improved?	<b>Acres of riparian management areas improved through activities including but not limited to:</b> <ul style="list-style-type: none"> <li>• Road obliteration</li> <li>• Riparian planting</li> <li>• Reconstruction of flood plains through removal of roads or berms</li> </ul>	WIT and FACTS (5 years)

## Soils (SOIL)

**Table 4. Soils (SOIL)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-SOIL-STD-02; FW-SOIL-GDL-04; FW-SOIL-GDL-05</b>	<b>MON-SOIL-01</b> Are post management activities conserving forest floor and coarse woody debris at levels that maintain dynamic soil quality?	<b>Post-treatment forest floor conditions</b> <ul style="list-style-type: none"> <li>• Detrimental Soil Disturbance (<i>% areal extent</i>)</li> <li>• Coarse Woody Debris (<i>tons/acres</i>)</li> <li>• Visual ground cover estimates</li> <li>• Soil burn severity</li> </ul>	Soil Monitoring Report Forest wide soil monitoring data base ( <i>Annual</i> )
<b>FW-SOIL-STD- 04; FW-SOIL-STD-05</b>	<b>MON-SOIL-02</b> Were road or trails restored to provide for soil quality to trend towards improvement?	<b>Number/acres and types of road/trail treatment</b>	Project Monitoring data, WIT/FACTS/INFRA ( <i>5 years</i> )

## Air Quality (AIR)

**Table 5. Air Quality (AIR)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-AQ-DC-01</b>	<b>MON-AQ-01</b> Is air quality in compliance with and maintained per Clean Air Act and Wilderness Act requirements?	<b>Air quality, forestwide</b> <ul style="list-style-type: none"> <li>• National Ambient Air Quality Standards</li> <li>• Regional Haze Rule</li> <li>• Air Quality Related Values</li> </ul>	NAAQS monitoring stations State regional haze plan IMPROVE monitoring sites ( <i>Annual</i> )

## Fire and Fuels Management (FIRE)

**Table 6. Fire and Fuels Management (FIRE)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-FIRE-DC-01</b>	<b>MON-DSTB-01</b> What is the extent and severity of wildfire burned areas?	<b>Burn Severity, forestwide</b> <ul style="list-style-type: none"> <li>• Acres burned by wildfire and by severity class (low, moderate, high) by R1 Broad PVT *for fires &gt;1000 acres.</li> </ul>	Monitoring Trends in Burn Severity (MTBS) database ( <i>Annual</i> )

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-FIRE-GDL-04</b>	<b>MON-FIRE-01</b> Are fire management strategies supporting ecosystem function resulting in becoming self-regulating?	<b>Fire management efficacy, forestwide</b> <ul style="list-style-type: none"> <li>• Acres of re-burn</li> <li>• Fire Severity on re-burned acres</li> <li>• Fire spread limited by previous fires</li> </ul>	FACTS FTEM (5 years)
<b>FW-FIRE-OBJ-01</b>	<b>MON-FIRE-02</b> To what extent are fuels management activities occurring to meet the objective of 15,000 acres of treatment per decade within the WUI?	<b>Hazardous fuels management, forestwide</b> <ul style="list-style-type: none"> <li>• Acres of prescribed fire</li> <li>• Acres of wildfire</li> <li>• Acres of other fuels treatments (rearrangement of fuels, pile burning, chipping, mastication)</li> </ul>	FACTS database (Annual)
	<b>MON-FIRE-03</b> Are treated fuel management areas being maintained?	<b>Maintenance of treated acres, forestwide</b> <ul style="list-style-type: none"> <li>• acres and locations of existing fuel treatments</li> <li>• acres of maintenance treatments completed</li> </ul>	FACTS (Annual)
<b>FW-FIRE-STD-01</b>	<b>MON-FIRE-04</b> Did reportable injuries occur on any wildfires?	<b>Wildfire-related injuries, forestwide</b> <ul style="list-style-type: none"> <li>• # of wildfire related injuries</li> </ul>	eSafety (Annual)
<b>FW-FIRE-DC-02</b> <b>FW-FIRE-GDL-03</b>	<b>MON-FIRE-05</b> Are fuels treatments helping to protect high value resources and assets, and control and/or management of the fire?	<b>Fuel Treatment Effectiveness, forestwide</b> <ul style="list-style-type: none"> <li>• # of fuel treatments that changed fire behavior</li> </ul>	FACTS FTEM (5 years)

## Vegetation – Terrestrial (VEGT)

**Table 7. Vegetation - Terrestrial (VEGT)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage; - Scale; and ( <i>Interval of data collection</i> )
<b>FW-VEGT-DC-01</b>	<b>MON-VEGT-01</b> What management activities have promoted shade intolerant trees (i.e., promoted resiliency)?	<b>Vegetation management activities that promote shade intolerant trees, Forestwide</b> <ul style="list-style-type: none"> <li>• Acres of regeneration harvest</li> <li>• Acres of natural regeneration and plantings</li> <li>• Acres of intermediate harvest</li> <li>• Acres of stand improvement</li> <li>• Acres of mechanical fuels treatments</li> <li>• Acres of prescribed burning</li> <li>• Acres of artificial and natural regeneration after wildfire</li> </ul>	FACTS restoration/resiliency report (5 years)
	<b>MON-FOCAL-02</b> What is the influence of management and climate on transitional ecotone plant communities (xeric and alpine)?	<b>Limber pine distribution and condition forestwide, by broad potential vegetation type, and by geographic area</b> <ul style="list-style-type: none"> <li>• % presence limber pine (at least 1 tree, any size; at least 1 tree present &lt;5" DBH; and at least 1 tree present &gt;5" DBH)</li> <li>• Proportion of limber pine trees affected by white pine blister rust and mountain pine beetle</li> <li>• Number of limber pine snags by size class</li> </ul>	FIA Plots and intensified grid plots (5 years)
<b>FW-VEGT-OBJ-01</b>	<b>MON-VEGT-02</b> To what extent have vegetation management treatments been applied on the landscape?	<b>Vegetation Management Treatments, Forestwide</b> <ul style="list-style-type: none"> <li>• Acres of Timber harvest</li> <li>• Acres of Planned ignitions</li> <li>• Acres of Unplanned ignitions</li> <li>• Acres of Planting</li> <li>• Acres of Pre-commercial thinning or other noncommercial stand tending</li> <li>• Acres of Fuel Reduction Treatments (re-arrangement of fuels, pile burning, chipping, mastication, etc)</li> </ul>	FACTS (average for the decade)



## Vegetation – Forested (VEGF)

**Table 8. Vegetation - Forested (VEGF)**

<b>Selected Plan Components</b>	<b>Monitoring Question</b>	<b>Indicator(s) and Measure(s)</b>	<b>Data Source/Storage; - Scale; (Interval of data collection)</b>
<b>FW-VEGF-DC-01</b> <b>CR-VEGF-DC-01; DI-VEGF-DC-01; EH-VEGF-DC-01; HW-VEGF-DC-01; RM-VEGF-DC-01; SN-VEGF-DC-01; UB-VEGF-DC-01</b>	<b>MON-VEGF-01</b> What is the abundance of R1 cover types?	<b>Cover type proportions, forestwide, by broad potential vegetation type, and by geographic area</b> <ul style="list-style-type: none"> <li>% of each cover type: ponderosa pine, dry Douglas-fir, mixed mesic conifer, lodgepole pine, aspen/hardwood, spruce/fir, whitebark pine, and nonforested.</li> </ul>	FIA Plots and intensified grid plots (5 years)
<b>FW-VEGF-DC-02</b> <b>BB-VEGF-DC-01; CA-VEGF-DC-01; CR-VEGF-DC-02; DI-VEGF-DC-02; EH-VEGF-DC-02; HW-VEGF-DC-02; LB-VEGF-DC-01; RM-VEGF-DC-02; SN-VEGF-DC-02; UB-VEGF-DC-02</b>	<b>MON-VEGF-02</b> What is the distribution of individual tree species?	<b>Tree species distribution forestwide, by broad potential vegetation type, and by geographic area</b> <ul style="list-style-type: none"> <li>% presence of each tree species (at least 1 tree present, any size; at least 1 tree present &lt;5" DBH; and at least 1 tree present &gt;5" DBH)</li> </ul>	FIA Plots and intensified grid plots (5 years)
<b>FW-VEGF-DC-03</b> <b>CA-VEGF-DC-02; CR-VEGF-DC-03; HW-VEGF-DC-03</b>	<b>MON-VEGF-03</b> What is the abundance of size classes?	<b>Size class proportions, forestwide, by broad potential vegetation type, and by geographic area</b> <ul style="list-style-type: none"> <li>% of each size class (0 to 4.9" DBH; 5 to 9.9" DBH; 10 to 14.9" DBH; 15 to 19.9" DBH; 20"+ DBH)</li> </ul>	FIA Plots and intensified grid plots (5 years)
<b>FW-VEGF-DC-04</b>	<b>MON-VEGF-04</b> What is the abundance of forest density classes?	<b>Density class proportions, forestwide, by broad potential vegetation type, and by geographic area</b> <ul style="list-style-type: none"> <li>% of each density class (10-39.9% canopy cover; 40-59.9% canopy cover; 60% + canopy cover)</li> </ul>	FIA Plots and intensified grid plots (5 years)
<b>FW-VEGF-DC-06</b>	<b>MON-VEGF-05</b> What is the quantity of very large trees, and the distribution of large and very large tree concentrations	<b>Large (15"+) and very large trees (20"+) by snag analysis groups</b> <ul style="list-style-type: none"> <li>% presence - at least 1 tree</li> <li>Trees per acre</li> <li>% presence of at least 1 tree of larch, Douglas-fir, ponderosa pine, or cottonwood</li> <li>Trees per acre larch, Douglas-fir, ponderosa pine, and cottonwood</li> </ul> <b>Large and very large tree concentrations forestwide and by broad potential vegetation type.</b> <ul style="list-style-type: none"> <li>% presence</li> </ul>	FIA Plots and intensified grid plots (5 years)

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage; - Scale; (Interval of data collection)
FW-VEGF-DC-07	<b>MON-VEG-06</b> What is abundance of old growth?	<b>Old Growth forestwide and by broad potential vegetation type</b> <ul style="list-style-type: none"> <li>% and total acres of old growth</li> </ul>	FIA Plots and intensified grid plots (5 years)
FW-VEGF-DC-08 FW-DC-POLL-01	<b>MON-VEGF-07</b> What is the quantity and distribution of snags?	<b>Snags by snag analysis groups, by size class (10"+ dbh; 15"+ dbh; and 20"+ dbh)</b> <ul style="list-style-type: none"> <li>% presence of at least 1 snag</li> <li>Snags per acre</li> </ul>	FIA Plots and intensified grid plots (5 years)
FW-VEGF-DC-09 FW-DC-POLL-01	<b>MON-VEGF-08</b> What is the quantity of coarse woody debris?	<b>Coarse woody debris (&gt;3" diameter) by broad potential vegetation types</b> <ul style="list-style-type: none"> <li>Tons per acre</li> </ul>	FIA Plots and intensified grid plots (5 years)
FW-VEGF-DC-11	<b>MON-DSTB-02</b> What is the hazard to forest insects?	<b>Hazard to Insect and Pathogen (low, moderate, high), forestwide and by broad potential vegetation types</b> <ul style="list-style-type: none"> <li>% of mountain pine beetle hazard</li> <li>% of Douglas-fir beetle hazard</li> <li>% of western spruce budworm hazard</li> </ul>	FIA Plots and intensified grid plots (5 years)
FW-VEGF-GDL-04	<b>MON-VEG-09</b> Do old growth stands retain minimum old growth criteria post-treatment?	<b>Stand characteristics in old growth treated with vegetation management</b> <ul style="list-style-type: none"> <li>Stand-level criteria to determine if old growth criteria are met.</li> </ul>	Stand exams (when treatments occur in old growth)

## Vegetation – Nonforested (VEGNF)

Table 9. Vegetation – Nonforested (VEGNF)

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage (Interval of data collection)
FW-VEGT-DC-01; FW-VEGNF-DC-01; FW-POLL-DC-01; FW-VEGNF-DC-03; FW-VEGNF-DC-04; BB-VEGNF-DC-01; CA-VEGNF-DC-01; CR-VEGNF-DC-01; DI-VEGNF-DC-01; EH-VEGNF-DC-01; HW-VEGNF-DC-01; LB-VEGNF-DC-01; RM-VEGNF-01; SN-VEGNF-	<b>MON-VEGNF-01</b> What is the abundance and condition of nonforested plant communities?	<b>Rangeland Condition and Trend forestwide and by GA</b> <ul style="list-style-type: none"> <li>Composition of shrubs, grasses, and forbs on rangeland sites over time in livestock allotments, compared to the estimated natural range of variability for the rangeland site.</li> <li>Changes in percent bare ground and litter in nonforested cover types</li> </ul>	Range AMP monitoring files (5 years) FIA plots (5 years)

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
DC-01; UB-VEGNF-DC-01; FW-POLL-DC-01; FW-WL-GDL-01		% of nonforested cover types, forestwide, by broad PVT, and by GA.	
FW-DC-POLL-01	<b>MON-POLL-01</b> Do plant communities contain pollinator-attractive species and species which bloom at different times including both early and late season species?	<b>Plant (forb, graminoids, and shrub) diversity in rangelands, forestwide</b> <ul style="list-style-type: none"> <li>Similarity index by allotment or pasture (<i>Weight of plant species within dominant sites in a pasture/allotments</i>)</li> <li>Species composition/richness in nonforested PVTs.</li> </ul> <b>Number of projects implemented that improve pollinator habitat forestwide</b> # of projects that improved pollinator habitat ( <i>beneficial seed mix, habitat improvements, etc.</i> ).	Range 2210 and/or 2240 files ( <i>annual</i> ) FIA plots ( <i>5 years</i> ) MT Heritage species observations/occurrences FACTS Pollinator project records ( <i>annual</i> )
	<b>MON-POLL-02</b> Do both non-forested and forested plant communities provide structural diversity?	<b>Mosaic of vegetation structures forestwide</b> <ul style="list-style-type: none"> <li>Size class proportions, forestwide, by broad PVT, and GA (% of each size class (0 to 4.9" DBH; 5 to 9.9" DBH; 10 to 14.9" DBH; 15 to 19.9" DBH; 20"+ DBH)</li> <li>Acres of regeneration harvest</li> <li>Acres of high severity fires</li> </ul> Spatial distribution of transitional VMap classes	FIA plots ( <i>5 years</i> ) FACTS ( <i>annual</i> ) VMap ( <i>5 years or when available</i> )

## Vegetation – Plant Species at Risk (PRISK)

**Table 10. Vegetation – Plant Species at Risk (PRISK)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
FW-PRISK-DC-01	<b>MON-PRISK-01</b> What is the status of rare plant occupancy?	<b>Rare plant occupancy, forestwide</b> <ul style="list-style-type: none"> <li># of stems; acres of occupancy; # surveys conducted; # sites present; # sites absent</li> </ul>	MT State Heritage Species of Concern records, Forest botany data ( <i>5 years</i> )

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
	<b>MON-PRISK-02</b> What is the distribution and condition of whitebark pine?	<b>Whitebark distribution and condition forestwide, by broad PVT, and by GA</b> <ul style="list-style-type: none"> <li>• % presence of each tree species (at least 1 tree present, any size; at least 1 tree present &lt;5" DBH; and at least 1 tree present &gt;5" DBH)</li> <li>• Proportion of whitebark pine trees affected by white pine blister rust and mountain pine beetle</li> <li>• Number of whitebark pine snags by size class</li> </ul>	FIA Plots and intensified grid plots (5 years)
<b>FW-PRISK-OBJ-01</b>	<b>MON-PRISK-03</b> What management actions contribute to the restoration of whitebark pine, and what is the success of established seedlings?	<b>Whitebark pine restoration actions forestwide</b> <ul style="list-style-type: none"> <li>• Acres treated for the purpose of sustaining or restoring whitebark pine.</li> <li>• Survival of planted whitebark pine seedlings</li> </ul>	FACTS; stocking surveys (5 years)

## Vegetation – Invasive Plants (INV)

**Table 11. Vegetation – Invasive Plants (INV)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-DC-VEGNF-02</b> <b>FW-INV-DC-01</b> <b>FW-INV-DC-02</b>	<b>MON-INV-01</b> What is the extent of nonnative plant species?	<b>Invasive plant presence and abundance forestwide</b> <ul style="list-style-type: none"> <li>• Net infested acres by species</li> <li>• Percent invasive species cover in inventoried areas</li> </ul>	TESP-IS (5 years)
<b>FW-INV-OBJ-01</b>	<b>MON-INV-02</b> What is the status of invasive plant treatments?	<b>Acres of treatment types</b> <ul style="list-style-type: none"> <li>• Biocontrol, Herbicide, Cultural, Sheep Grazing, or other types)</li> </ul>	FACTS (5 years)
<b>FW-INV-GDL-03</b> <b>FW-PRISK-DC-01</b>	<b>MON-INV-03</b> Are non-detrimental weed treatments occurring in areas that overlap with known populations of at-risk plant species?	<b>Invasive weed treatments that occur in at-risk plant populations</b> <ul style="list-style-type: none"> <li>• # of at-risk plant occurrences that receive beneficial weed treatments</li> <li>• Invasive plant treatments used in at-risk plant communities</li> </ul>	Botany viability report (5 years)

## Wildlife (WL)

Table 12. Wildlife (WL)

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage (Interval of data collection)
<b>DI-WL-DC-01</b> <b>UB-WL-DC-01</b> <b>UB-WL-GDL-01</b>	<b>MON-WL-01</b> Have there been changes to landscape connectivity in the Divide and Upper Blackfoot GAs?	<b>Landscape scale connectivity</b> <ul style="list-style-type: none"> <li># and types of actions - in Divide GA and Upper Blackfoot GA</li> <li># of land acquisitions in Divide GA only</li> </ul> <b>Management Actions in connectivity corridors</b> <ul style="list-style-type: none"> <li># and types of actions in Divide and Upper Blackfoot GAs</li> <li># of land acquisitions in Divide GA</li> </ul>	FACTS INFRA WITS PALS Land acquisition SO records (5 years)
<b>FW-WL-DC-04</b>	<b>MON-WL-02</b> Are bear and other wildlife conflicts being minimized?	<b>Bear conflicts</b> <ul style="list-style-type: none"> <li># conflict incidents</li> <li># food storage violations</li> </ul>	Law enforcement reports Fish Wildlife & Parks Conflict Database NCDE and GYE Conservation Strategy Monitoring Reports (5 years)
<b>FW-WL-NRLMD plan components</b>	<b>MON-WL-03</b> Have there been changes to lynx habitat as a result of forest management	<b>Alterations of lynx habitat</b> <ul style="list-style-type: none"> <li>Acres changed from suitable to not currently suitable</li> <li>Number of acres of exceptions used.</li> </ul>	FACTS, project decisions (5 years)
<b>FW-WL-Grizzly Bear Amendment plan components</b>	<b>MON-WL-04</b> Have there been changes to baseline habitat conditions for grizzly bears as defined in the GB Amendment?	<b>Habitat security conditions</b> <ul style="list-style-type: none"> <li>Open and Total motorized route density by BMU Subunit,</li> <li>acreage of secure core by BMU Subunit,</li> <li>number of developed recreation sites by BMU Subunit</li> </ul>	NCDE CS monitoring report (data derived from INFRA and PALS) (5 years)
<b>EH-WL-DC-02; UB-WL-DC-2</b>	<b>MON-WL-03</b> What is the status of habitat conditions that support flammulated owls during the nesting season?	<b>Ponderosa pine and snag habitat</b> <ul style="list-style-type: none"> <li>Percentage of the warm-dry and warm-moist biophysical settings (with ponderosa pine trees greater than 15 inches d.b.h (dominance type or presence).</li> <li>Average number of snags per acre greater than 15 inches d.b.h. in the warm-dry and warm-moist biophysical settings.</li> </ul>	FIA FACTS (5 years)

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage (Interval of data collection)
		<ul style="list-style-type: none"> <li>Average density of the ponderosa pine dominance type.</li> <li>Number of acres of ponderosa pine forest treated to promote desired landscape pattern for flammulated owls.</li> </ul> <p><b>Burned areas</b></p> <ul style="list-style-type: none"> <li>Acres of 2-20 yrs. old burned (Rx and wildfire)</li> </ul> <p>Report by Forest and specifically for Elkhorns &amp; Upper Blackfoot</p>	
<b>FW-FWL-DC-01; FW-FWL-DC-03; FW-FWL-DC-02; FW-FWL-DC-04; FW-FWL-GDL-01; FW-FWL-GDL-02; FW-WL-GDL-05</b>	<b>MON-WL-04</b> What changes in hunting opportunities have occurred?	<b>Harvest Opportunity</b> <ul style="list-style-type: none"> <li>hunter-days for Hunting Districts that include HLC NF lands</li> <li></li> </ul>	FWP data (5 years)
<b>FW-WL-GDL-10</b>	<b>MON-WL-05</b> What management actions are occurring to prevent the spread of white-nose syndrome or other diseases?	<b>Preventative white-nose syndrome actions</b> <ul style="list-style-type: none"> <li># and locations of preventative actions reducing the spread of white-nose syndrome or other disease</li> </ul>	PALS  (5 years)
<b>EH-WL-DC-01</b> Habitat is available that provides for the needs of species with seclusion as a requirement.	<b>MON-WL-06</b> What management activities have occurred in the Elkhorn Mountains?	<b>Activities in Elkhorns</b> <ul style="list-style-type: none"> <li>Miles of new trails or road construction authorized</li> <li>Pull indicators from current MOU monitoring plan</li> </ul>	PALS INFRA Cooperative Elkhorns Wildlife Monitoring Program (5 years)

## Recreation Settings (ROS)

Table 13. Recreation Settings (ROS)

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage (Interval of data collection)
<b>FW-ROS-DC-01-13</b>	<b>MON-ROS-01</b> What is the progress towards achieving desired recreation opportunity spectrum desired conditions?	<p><b>Recreation opportunity spectrum (ROS)</b></p> <p><u>By ROS classes</u></p> <ul style="list-style-type: none"> <li>ROS acres at time of ROD</li> <li>Current ROS acres when measured</li> </ul>	FACTS INFRA  (5 years)

## Recreation Opportunities (REC)

**Table 14. Recreation Opportunities (REC)**

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-REC-DC-01</b> <b>FW-REC-DC-03</b> <b>FW-REC-DC-04</b> <b>FW-REC-DC-06</b>	<b>MON-REC-01</b> To what extent are developed recreation sites managed for social and ecological sustainability?	<b>Developed Recreation site conditions</b> <ul style="list-style-type: none"> <li>• <i># and types of developed recreation sites/areas changed or improved</i></li> <li>• <i>#of changes to existing facilities</i></li> </ul>	INFRA (5 years)
<b>FW-REC-DC-07; FW-REC-DC-05</b>  <b>DI-SHRA-DC-03</b> <b>(South Hills Recreation Area)</b>	<b>MON-REC-02</b> What is the status of social and resource conditions of recreation rental facilities, dispersed sites and/or trailhead facilities	<b>Recreation conditions</b> <ul style="list-style-type: none"> <li>• <i># and types of dispersed recreation sites/areas</i></li> <li>• <i># of people that using the dispersed sites</i></li> <li>• <i>Level of satisfaction of sites</i></li> <li>• <i># and types of social conflicts in selected, concentrated dispersed camping/recreation areas</i></li> <li>• <i># of reported social conflict or resource damage incidents</i></li> <li>• <i># and locations of dispersed recreation sites that are under used</i></li> <li>• <i># and locations of dispersed recreation sites over used</i></li> <li>• <i>#, types, and locations of primary use change of dispersed recreation sites</i></li> <li>• <i>\$ of deferred maintenance needs per recreation rental facility</i></li> <li>• <i># and locations of maintenance actions at recreation rental facilities</i></li> </ul>	National Visitor Use Monitoring (10 years)  Law enforcement reports
<b>FW-REC-GO-01</b>	<b>MON-REC-03</b> To what extent are recreation partnerships and volunteer programs support recreation programs?	<b>Recreation partnerships</b> <ul style="list-style-type: none"> <li>• <i># of partnerships</i></li> <li>• <i># of volunteer programs</i></li> </ul>	Volunteer/partnership data (5 years)

## Recreation Special Uses (RSUP)

**Table 15. Recreation Special Uses (RSUP)**

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
FW-RSUP-DC-01	<b>MON-RSUP-01</b> What is the status of recreation special use permits?	<b>Recreation Special Use Permits</b> <ul style="list-style-type: none"> <li>• #, type and locations recreation SUP</li> </ul>	SUDS (10 years)

## Scenic Character (SCENERY)

**Table 16. Scenic Character (SCENERY)**

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
FW-SCENERY-DC-01, 02, 03	<b>MON-SCENERY-01</b> What is the progress on moving towards scenic integrity objectives?	<b>Scenic Integrity Objectives (SIO)</b> <ul style="list-style-type: none"> <li>• Number of NEPA decisions that move towards SIO</li> <li>• Number of decisions that did not meet SIO or do # of decisions needing amendment to the SIO</li> </ul>	PALS – NEPA decisions (10 years)

## Designated Areas

(Wilderness, Recommended Wilderness, Wilderness Study Areas, Inventoried Roadless Areas, Eligible Wild and Scenic Rivers, Nationally Designated Trails, Research Natural Areas, Lewis and Clark National Historic Trail Interpretive Center)

**Table 17. Designated Areas**

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
FW-WILD-DC-01	<b>MON-WILD-01</b> Is wilderness character in existing wilderness being maintained?	<b>Indicators of wilderness character</b> Naturalness, solitude, etc. Based on the limits of acceptable change <b>Wilderness maintained to standard</b>	Wilderness limits of acceptable change inventory (5 years) Wilderness character baseline inventory (5 years) INFRA (5 years)



Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-RECWILD-DC-01</b> <b>FW-WSA-DC-02</b>	<b>MON-RECWILD-01</b> Are wilderness characteristics being maintained in recommended wilderness and wilderness study areas?	<b>Indicators of wilderness character</b> Naturalness, solitude, etc. Based on the limits of acceptable change	Wilderness Limits of acceptable change inventory ( <i>5 years</i> ) Wilderness character baseline inventory ( <i>5 years</i> )
<b>FW-WSR-STD-01</b>	<b>MON-WSR-01</b> Are we maintaining eligible wild and scenic rivers to remain eligible?	Outstanding Remarkable Values maintained <ul style="list-style-type: none"> <li>• Scenery – SIOs within river corridors identified with a scenery ORV</li> <li>• Fish – WCT or bull trout population status within river corridors identified with a fish ORV</li> <li>• Recreation opportunities within river corridors identified with a recreation ORV</li> <li>• Cultural – number of damaged cultural sites within river corridors identified with a cultural ORV.</li> </ul> No monitoring elements identified for scenery, wildlife or geological ORVs.	MTFISH database Recreation Supervisor's Office Records Natural Resource Heritage 9.0 ( <i>5 years</i> )
<b>FW-NDT-DC-01</b>	<b>MON-NRT-01</b> Is access to trails provided and maintenance conducted?	<b>Miles maintained and improved to standard</b>	INFRA ( <i>5 years</i> )
<b>FW-CDNST-DC-01, FW-CDNST-DC-04; FW-CDNST-DC-06</b>	<b>MON-CDNST-01</b> Is access to the trail provided and maintenance conducted?	<b>Miles maintained and improved to standard</b>	INFRA ( <i>5 years</i> )

## Cultural and Historic Resources (CR) and Areas of Tribal Importance (TRIBAL)

**Table 18. Cultural and Historic Resources (CR) and Areas of Tribal Importance (TRIBAL)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-CR-GDL-01</b>	<b>MON-CRT-01</b> What is the progress toward preservation and conservation of significant cultural resources?	<b>Cultural resources conservation actions by Forest and Geographic Area</b> <ul style="list-style-type: none"> <li>• # <i>new sites recorded</i></li> <li>• # <i>significant evaluations</i></li> <li>• # <i>nominated</i></li> <li>• # <i>scientific excavation</i></li> <li>• # <i>public education about sites</i></li> <li>• # <i>damages</i></li> <li>• # of 106 (project driven) vs 110 (non-project driven)</li> </ul>	Natural Resource Managers Heritage Database and Heritage Annual Report to the State Historic Preservation Office(5 years)
<b>FW-CR-DC-03</b> <b>FW-CONNECT-DC-01</b> <b>FW-CONNECT-DC-02</b>	<b>MON-CRT-02</b> What public cultural resource learning opportunities are provided?	<b>Cultural resources outreach</b> <ul style="list-style-type: none"> <li>• # <i>education and interpretation outreach</i></li> <li>• # <i>publications</i></li> </ul>	Heritage Annual Report to the State Historic Preservation Office (5 years)
<b>FW-CR-DC-04</b>	<b>MON-CRT-03</b> What opportunities are provided for volunteers to participate in cultural resource conservation activities?	<b>Cultural resource volunteer opportunities</b> <ul style="list-style-type: none"> <li>• # of <i>volunteers by site or cultural project</i></li> </ul>	Heritage Annual Report to the State Historic Preservation Office (5 years)
<b>FW-CR-GO-02</b>	<b>MON-CRT-04</b> What consultations have occurred with Native America tribes to aid in the protection and enhancement of cultural resources?	<b>Tribal consultations</b> <ul style="list-style-type: none"> <li>• # of <i>consultation (with whom and what projects)</i></li> </ul>	Heritage Annual Report to the State Historic Preservation Office (5 years)

## Land Status and Ownership (LAND) and Land Uses (LAND USE)

**Table 19. Land Status and Ownership (LAND) and Land Uses (LAND USE)**

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-LAND-DC-02</b>	<b>MON-LAND-01</b>	<b>Easements</b>	ALPs database

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
	To what extent are management actions occurring to provide road and trail easements?	<ul style="list-style-type: none"> <li>• # and location of new and existing easements</li> <li>• # and location of existing temp easements at risk</li> <li>• # and location of access/easement needs</li> </ul>	(10 years)

## Infrastructure – Roads and Trails (RT), Bridges (BRDG), and Facilities (FAC)

**Table 20. Infrastructure – Roads and Trails (RT), Bridges (BRDG), and Facilities (FAC)**

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-RT-DC-01</b>	<b>MON-INFRA-01</b> To what extent are road status changes occurring to provide a safe and cost effective transportation system?	<b>Road status Conversion</b> <ul style="list-style-type: none"> <li>• # miles decom or converted</li> <li>• % decom road that were ID by subpart A (by forest)</li> </ul>	INFRA (5 years)
<b>FW-RT-DC-03</b> <b>FW-RT-OBJ-03</b> <b>FW-RT-OBJ-04</b> <b>FW-RT-OBJ-05</b> <b>FW-ACCESS-DC-01</b>	<b>MON- INFRA -02</b> What is the status of road and trail improvement and maintenance?	<b>Road improvement and maintenance</b> <ul style="list-style-type: none"> <li>• Miles maintained roads</li> <li>• Miles maintained trails</li> <li>• Miles improved roads</li> <li>• Miles improved trails</li> </ul>	INFRA (5 years)

## Benefits to People –Public Information, Interpretation, and Education (CONNECT)

**Table 21. Benefits to People –Public Information, Interpretation, and Education (CONNECT)**

Selected Plan Components	Monitoring Question	Indicator(s) Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-CONNECT-DC-01: FW-CONNECT-DC-02</b> See also Cultural Resources and Areas of Tribal Importance section.	<b>MON-CONNECT-01</b> To what extent is the Forest providing opportunities for public information, interpretation and education?	<ul style="list-style-type: none"> <li>• Percent change in the # of education and interpretation programs offered(since the previous monitoring cycle)</li> <li>• Percent change in the # of people who attended education and interpretation programs (since the previous monitoring cycle)</li> </ul>	NICE database (5 years)

## Benefits to People – Livestock Grazing (GRAZ)

**Table 22. Benefits to People – Livestock Grazing (GRAZ)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-GRAZ-DC-01; FW-GRAZ-DC - 02; FW-GRAZ-DC-03; FW-GRAZ-STD-02</b>	<b>MON-GRAZ-01</b> Are rangelands maintaining or moving towards desired resource condition in response to livestock grazing management?	<b>Long-Term Effectiveness Monitoring</b> <ul style="list-style-type: none"> <li>Changes in bare ground and litter</li> <li>Changes in vegetation composition and cover</li> </ul>	PIBO AMP monitoring (5 years)
<b>FW-GRAZ-DC-04; FW-GRAZ-GDL-01</b>	<b>MON-GRAZ-02</b> How are riparian plant communities responding to grazing by domestic livestock?	<b>Long-term condition and trend</b> <ul style="list-style-type: none"> <li>Permanent riparian vegetation transects</li> <li>Hydrology cross-sections</li> <li>Riparian photo points</li> </ul>	PIBO AMP monitoring (5 years)
<b>FW-GRAZ-GDL -05</b>	<b>MON-GRAZ-03</b> What adaptive actions are being implemented and how are resources trending as a result of management changes?	<ul style="list-style-type: none"> <li>Range vegetation acres improved</li> <li>Range Betterment Funds expended</li> </ul>	PIBO AMP monitoring (5 years)
<b>FW-FAH-GDL-04; FW-CWN-GDL-03</b>	<b>MON-GRAZ-04</b> Are new and revised livestock management plans designed to maintain water quality?	<b>Water quality maintained or improved forestwide and by Conservation Watershed Network</b> <ul style="list-style-type: none"> <li><i>Miles of intermittent and perennial streams moving towards desired condition</i></li> <li><i># of improved management strategies expected to move RMZs towards desired conditions</i></li> </ul>	INRFA FACTS National BMP reviews AMP monitoring (5 years)

## Benefits to People – Timber (TIM)

**Table 23. Benefits to People – Timber (TIM)**

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-TIM-DC-02</b>	<b>MON-TIM-01</b> What is the severity of natural disturbances on lands suitable for timber production?	<b>Disturbances in lands suitable for timber production, Forestwide and in lands suitable for timber production</b> <ul style="list-style-type: none"> <li>Acres of wildfire in lands suitable for timber production, by severity</li> </ul>	Monitoring Trends in Burn Severity (MTBS) database; Aerial Detection Surveys (ADS) (5 years)

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
		<ul style="list-style-type: none"> <li>Acres of insect and disease infestations in lands suitable for timber production</li> </ul>	
<b>FW-TIM-OBJ-01</b> <b>FW-TIM-OBJ-02</b> <b>FW-TIM-STD-07</b>	<b>MON-TIM-02</b> What is the quantity of wood products sold by the Forest?	<b>Volume wood sold forestwide</b> <ul style="list-style-type: none"> <li>Timber sale quantity (products that meet utilization standards) in MMBF and MMCF.</li> <li>Wood sale quantity (all wood products, including firewood, biomass, post/poles, non-saw material, etc) in MMBF and MMCF</li> </ul>	TIM database (5 years)
<b>FW-TIM-STD-02</b>	<b>MON-TIM-03</b> What is the restocking status of stands that have had a regeneration harvest in the last 5 years?	<b>Reforestation certification status forestwide</b> <ul style="list-style-type: none"> <li>Number of stands and acres that were harvested in the last 5 years by reforestation status: Certified, Progressing, or Failed</li> </ul>	FACTS database (5 years)
<b>FW-TIM-STD-08</b> <b>FW-TIM-STD-09</b> <b>FW-TIM-STD-10</b>	<b>MON-TIM-04</b> What are the patch sizes of regeneration harvest, and to what extent are maximum patch size exceptions being implemented?	<b>Patch size of regeneration harvest units by broad potential vegetation types</b> <ul style="list-style-type: none"> <li>Number of regeneration harvest units less than 40 acres; between 40 acres and 125 acres; and greater than 125 acres</li> </ul>	FACTS database (5 years)

## Benefits to People – Other Forest Products and Wood for Fuel (OFP)

Table 24. Benefits to People – Other Forest Products and Wood for Fuel (OFP)

Selected Plan Components	Monitoring Question	Indicator(s) and Measure(s)	Data Source/Storage ( <i>Interval of data collection</i> )
<b>FW-OFP-DC-01</b> <b>FW-OFP-DC-02</b> <b>FW-TRIBAL-DC-01</b>	<b>MON-OFP-01</b> What quantities of other forest products are sold by the Forest?	<b>Other forest products sold forestwide</b> <ul style="list-style-type: none"> <li>Number of Christmas tree permits sold</li> <li>Quantity of mushrooms sold</li> </ul>	TIM database (5 years)

## Benefits to People – Fish and Wildlife (FWL)

**Table 25. Benefits to People – Fish and Wildlife (FWL)**

<b>Selected Plan Components</b>	<b>Monitoring Question</b>	<b>Indicator(s) and Measure(s)</b>	<b>Data Source/Storage (<i>Interval of data collection</i>)</b>
<b>FW-FWL-DC-01, FW-FWL-DC-03, FW-FWL-DC-04</b>	<b>MON-FWL-01</b> To what extent is the Forest providing opportunities for fish and wildlife related activities (including, fishing, hunting, photography and wildlife viewing)?	<b>Visitors engaged in fish and wildlife activities</b> Percent change in # of visitors engaged in fishing, hunting, photography and wildlife viewing (since previous monitoring cycle)	NVUM (5 years)

## Appendix B. Maps

At this stage of the analysis, all of the maps are provided in appendix A of the Draft Environmental Impact Statement, and in some cases vary by alternative. To avoid duplication, they are therefore omitted from this appendix. Maps of the selected alternative will be included here when the revised forest plan is finalized at the end of the planning process.

This page intentionally left blank.



# Appendix C. Potential Management Approaches and Possible Actions

## Table of Contents

<b>Introduction .....</b>	<b>1</b>
<b>Possible Forest Management Actions and Timber Harvest.....</b>	<b>1</b>
<b>Possible Management Strategies and Approaches .....</b>	<b>3</b>
<b>Aquatic Ecosystems.....</b>	<b>3</b>
Watershed .....	3
Fisheries and aquatic habitat/ conservation watershed network .....	4
Riparian Management Zones.....	5
Soil and Geology .....	5
<b>Fire and fuels .....</b>	<b>5</b>
<b>Terrestrial Vegetation .....</b>	<b>7</b>
General strategies for vegetation management and climate change.....	7
General strategies for forested and nonforested vegetation management.....	7
Terrestrial Vegetation – Strategies for Specific Plan Components .....	9
Forested Vegetation – Strategies for Specific Plan Components.....	11
General Strategies for Plant Species at Risk .....	22
General Strategies for Pollinators .....	23
General Strategies for Invasive Plants .....	23
<b>Wildlife .....</b>	<b>24</b>
General strategies.....	24
Goals .....	25
Threatened, Endangered, Proposed and Candidate Wildlife Species.....	25
Wildlife Species of Conservation Concern .....	26
Other Wildlife Species.....	27
<b>Recreation Settings, Opportunities, Access, and Scenic Character .....</b>	<b>28</b>
Settings – Recreation Opportunity Spectrum.....	28
Opportunities – Developed Recreation Sites.....	28
Opportunities – Dispersed Recreation.....	29
Opportunities – Recreation Special Uses.....	29
Scenic Character .....	29
<b>Designated Areas .....</b>	<b>29</b>
Inventoried roadless areas.....	29
Wilderness .....	31
Continental Divide National Scenic Trail.....	31
Research Natural Areas.....	31
Special Areas .....	31
Lewis and Clark National Historic Trail Interpretive Center.....	31
<b>Cultural and Historic Resources and Uses .....</b>	<b>32</b>
Cultural Resources .....	32
Areas of Tribal Importance .....	32
<b>Lands Status and Ownership, Land Uses, and Access Patterns.....</b>	<b>32</b>

<b>Infrastructure.....</b>	<b>32</b>
<b>Benefits to People: Multiple Uses and Ecosystem Services .....</b>	<b>33</b>
Livestock Grazing .....	33
Timber, Other Forest Products, and Wood for Fuel .....	33
Connecting People with Nature and History .....	35
Carbon.....	36
Energy and Minerals .....	36
<b>Literature .....</b>	<b>37</b>

## List of Tables

Table 1. Vegetation management practices for timber harvest, annual average acres for the first and second decades of the plan period .....	2
Table 2. Alternatives B/C projected timber sale program, annual average volume outputs for the first and second decades of the plan period .....	2
Table 3. Considerations for tree and plant species of local management interest .....	8
Table 4. Examples of possible vegetation treatments for FW-OBJ-VEGT-01 .....	10
Table 5. Geographic area context for forestwide cover type desired conditions, FW-DC-VEGF-01.....	11
Table 6. Geographic area context for forestwide size class desired conditions, FW-DC-VEGF-03 .....	12
Table 7. Considerations for FW-STD-VEGF-01, large and very large live trees .....	14
Table 8. Considerations for FW-GDL-VEGF-04, old growth .....	16
Table 9. Considerations for FW-GDL-VEGF-02, snags .....	19
Table 10. Considerations for FW-GDL-VEGF-06, coarse woody debris.....	20

## Introduction

The 2012 planning rule requires land management plans to “...contain information reflecting proposed and possible actions that may occur on the plan area during the life of the plan, including: the planned timber sale program; timber harvesting levels; and the proportion of probable methods of forest vegetation management practices expected to be used” (16 United State Code (U.S.C.) 1604(e)(2) and (f)(2)). Such information is not a commitment to take any action and is not a ‘proposal’ as defined by the Council on Environmental Quality regulations for implementing the National Environmental Policy Act (40 CFR 1508.23, 42 U.S.C. 4322(2)(C)) (36 CFR 219.7(f)(1)). Management approaches and strategies presented may include suggestions for on-the-ground implementation, analysis, assessment, inventory or monitoring, and partnership and coordination opportunities the forest is proposing as helpful to make progress in achieving its desired conditions. The potential approaches and strategies are not all-inclusive, nor commitments to perform particular actions.

The revised HLC NF Plan employs a strategy of adaptive management in its decision making and achievement of forest plan desired conditions and objectives. An adaptive management strategy emphasizes the learning process. It involves using the best current knowledge to design and implement management actions, followed by monitoring and evaluating results and adjusting future actions on the basis of what has been learned. This is a reasonable and proactive approach to decision making considering the degree of uncertainty in future ecological, social and economic factors.

This appendix describes possible actions, potential management approaches, and strategies the HLC NF may undertake to make progress in achieving desired conditions and objectives. It includes a list of possible project types that may be undertaken. These include the possible timber sale program, timber-harvesting levels, and the probable methods of vegetation management practices expected to be used over the life of the plan. However, speculation about the specific amount or treatment types, frequency, location, magnitude, or numbers of actions during the plan period are not included. This appendix does not serve as a “to do” list of projects and expected dates. The potential management approaches may be used to inform future proposed and possible actions. These strategies and actions provide guidance for plan implementation, and represent possibilities, preferences, or opportunities, rather than obligatory actions. Under an adaptive management approach, proposed strategies and actions are dynamic. They are changeable, augmentable, or replaceable, so as to be responsive to results of new research, practical experience, and other information and observations.

This appendix also provides information intended to clarify and provide additional information that may help managers interpret and implement plan components. Not all plan components are addressed, but only those for which additional information is warranted. This approach recognizes the highly variable site conditions and management situations that are best addressed at the level of project analysis.

This appendix does not commit the HLC NF to perform or permit activities. Information included does not direct or compel processes such as analysis, assessment, consultation, planning, inventory, or monitoring.

## Possible Forest Management Actions and Timber Harvest

As required by the 2012 planning rule, this section identifies the possible actions and proportion of probable methods of forest vegetation management practices expected to be used to achieve desired timber harvesting levels and outputs. The identification of possible actions includes an estimate of timber harvesting levels anticipated over the next 1 to 2 decades, but does not include speculation about the

specific amount, frequency, location, magnitude, or numbers of actions during the plan period. Estimated acres of treatment and associated timber product outputs [reported in million cubic feet (mmcf) and million board feet (mmbf)] were determined through use of the Spectrum model. This model is an analytical tool used to evaluate vegetation management scenarios that achieve resource objectives. Among other things, the model provides an estimate of the level of timber products expected and the management practices applied to achieve that level, given a set of inputs that includes existing and desired vegetation conditions, budget and resource constraints, and expected vegetation change.

Table 1 displays the acres and treatments expected for the first and second decades of the plan period by alternative. Production of sawtimber and other wood products is expected through commercial timber harvest, which includes even-aged regeneration harvests (such as clearcut, seedtree, shelterwood) and other harvests (such as thinning and uneven-aged harvests). The appropriate or optimum methods of harvest would be based upon site-specific determinations made during project planning and documented in a silvicultural prescription.

**Table 1. Vegetation management practices for timber harvest, annual average acres for the first and second decades of the plan period**

Type of Harvest	Decade	Alternative B/C	Alternative D	Alternative E
Even-aged Regeneration	1	3,326	3,199	1,955
	2	1,747	1,771	1,759
Other Harvest	1	766	876	381
	2	2,500	2,500	1,000
Total Harvest	1	4,091	4,075	2,336
	2	4,247	4,271	2,759

Table 2 displays the projected timber sale quantity (PTSQ), for products meeting utilization standards and the projected wood sale quantity (PWSQ), for all wood products including fuelwood or biomass that do not meet timber product utilization standards, by alternative. Volumes include harvest that occurs on lands suitable for timber production as well as lands that are not suitable. As required by the 2012 planning rule, the estimates take into account the fiscal capability of the planning unit and are consistent with all plan components. Timber outputs may be larger or smaller on an annual basis, or over the life of the plan, if budget or other constraining factors change in the future. The timber outputs are below the sustained yield limit, which is the volume that can be produced in perpetuity on lands that may be suitable for timber production. The calculation of the sustained yield limit is not limited by land management plan desired conditions, other plan components, or the planning unit's fiscal capability and organizational capacity. A sustained yield limit of 5.03 mmcf (26.68 mmbf) was calculated for the proclaimed Helena National Forest; and 4.02 mmcf (21.30 mmbf) for the proclaimed Lewis & Clark NF, totaling 9.05 mmcf (47.98 mmbf) for the administratively combined HLC NF.

**Table 2. Projected timber sale program, annual average volume outputs for the first and second decades of the plan period, by alternative**

Category and Decade	Decade 1 (mmcf)	Decade 1 (mmbf)	Decade 2 (mmcf)	Decade 2 (mmbf)
<b>Alternatives B/C</b>				
Timber Products <sup>a</sup> A1. Lands suitable for timber production	3.13	14.47	3.67	17.36
Timber Products <sup>a</sup> A2. Lands not suitable for timber production	1.12	4.71	2.05	9.41

Category and Decade	Decade 1 (mmcf)	Decade 1 (mmbf)	Decade 2 (mmcf)	Decade 2 (mmbf)
<b>Projected Timber Sale Quantity (A1 + A2)</b>	<b>4.25</b>	<b>19.18</b>	<b>5.72</b>	<b>26.77</b>
Other Wood Products <sup>b</sup> B. All lands	1.99	2.88	2.21	4.02
<b>Projected Wood Sale Quantity<sup>b</sup> (A1 + A2 + B)</b>	<b>6.24</b>	<b>22.06</b>	<b>7.93</b>	<b>30.78</b>
<b>Alternative D</b>				
Timber Products <sup>a</sup> A1. Lands suitable for timber production	3.15	14.57	3.71	17.56
Timber Products <sup>a</sup> A2. Lands not suitable for timber production	1.12	4.71	2.01	9.23
<b>Projected Timber Sale Quantity (A1 + A2)</b>	<b>4.26</b>	<b>19.28</b>	<b>5.73</b>	<b>26.79</b>
Other Wood Products <sup>b</sup> B. All lands	1.99	2.89	2.21	4.02
<b>Projected Wood Sale Quantity<sup>b</sup> (A1 + A2 + B)</b>	<b>6.25</b>	<b>22.17</b>	<b>7.94</b>	<b>30.81</b>
<b>Alternative E</b>				
Timber Products <sup>a</sup> A1. Lands suitable for timber production	4.69	22.78	4.53	21.92
Timber Products <sup>a</sup> A2. Lands not suitable for timber production	2.72	13.28	2.88	13.93
<b>Projected Timber Sale Quantity (A1 + A2)</b>	<b>7.41</b>	<b>36.06</b>	<b>7.41</b>	<b>35.84</b>
Other Wood Products <sup>b</sup> B. All lands	2.46	5.41	2.46	5.38
<b>Projected Wood Sale Quantity<sup>b</sup> (A1 + A2 + B)</b>	<b>9.87</b>	<b>41.46</b>	<b>9.87</b>	<b>41.22</b>

- a. Potential Timber Sale Quantity (PTSQ) – Volume, other than from salvage or sanitation treatments, that meet timber product utilization standards, from lands suitable and not suitable for timber production.
- b. Volume of all Other Wood Products - Fuelwood, biomass, and other volumes that do not meet timber product utilization standards (small diameter 3 -7 inches).

Source: SPECTRUM model analysis

## Possible Management Strategies and Approaches

### Aquatic Ecosystems

#### Watershed

- Improve and protect water quality by implementing “National Best Management Practices for Water Quality Management on National Forest System Lands”, “Montana Best Management Practices” and “Soil and Water Conservation Practices.”
- Manage towards reference conditions to maintain or restore the inherent resiliency of aquatic ecosystems to maintain native aquatic wildlife populations during and after stressor events such as; warming air temperatures, prolonged droughts, earlier season runoff, and higher intensity floods and wildfire.
- Develop species-specific plan components as specified in conservation strategies for individual species or groups of species (such as bull and west slope cutthroat trout). Through implementation of the plan components, including desired conditions, objectives, standards and guidelines, the species would be anticipated to trend toward recovery and subsequent delisting.
- Restore riparian habitats to aid in the reestablishment of beavers into stream segments where currently absent but where they historically occurred.
- Restore water quality and stream habitats by improving watershed scale processes and through direct riparian and in-channel treatments.

- Work toward the delisting of impaired water bodies in cooperation with Montana Department of Environmental Quality and Environmental Protection Agency through water quality assessment, total maximum daily loads, restoration plans, implementation of best management practices, and monitoring.
- Cooperate with private land owners and other agencies to improve water quality and restore aquatic ecosystems across multiple ownerships.
- Remove, reconstruct, or improve maintenance of roads located in riparian areas to improve watershed health and reduce sediment delivery to the aquatic ecosystem.
- Treat upland roads to reduce water interception and reduce landslide risk.
- Complete the development of watershed restoration action plans for all identified priority watersheds and its implementation. Identify essential projects in the watershed improvement tracking database.
- Consider the use of remote sensing surveys to provide more information about high priority watersheds.
- Evaluate condition of groundwater dependent ecosystems, emphasizing project areas and priority watersheds.

## Fisheries and aquatic habitat/ conservation watershed network

The desired condition to work cooperatively to recover bull trout and westslope cutthroat trout sets the stage for management.

- Cooperate with USFWS, tribes, state agencies, other federal agencies, and interested groups to assist in bull and westslope cutthroat trout through the Bull Trout Conservation Strategy and the Bull Trout Recovery Plan.
- Follow direction within the *U.S. Forest Service Bull Trout Conservation Strategy* that would move the current baseline condition to an upward trend for each local bull trout population for indicators (temperature, barriers, pools, and sediment). Restoration activities such as barrier removal and road decommissioning are listed for each local population.
- Consult the *Recovery Plan for the Coterminous United States Population of Bull Trout (Salvelinus confluentus)* (also known as the Bull Trout Recovery Plan), which includes recovery goals, objectives and criteria that the Forest would cooperate with partners to achieve. By doing this, threats can be managed and a sufficient distribution and abundance of bull trout would be ensured across the forest.
- Refer to the *Columbia Headwaters Recovery Unit Implementation Plan for bull trout (Salvelinus confluentus)* (also known as the Recovery Unit Implementation Plan), which is a subset of the recovery plan that identifies threats and actions within each core area.
- Consider existing conditions, factors limiting aquatic species populations, resource risks, restoration options, and available recovery planning information when planning management activities.
- Consider basin, subbasin, watershed, and reach scale conditions including habitat conditions from the PACFISH/INFISH biological opinion and other stream surveys, factors limiting aquatic species (including non-native species), resource risks, management requirements, restoration opportunities, and interagency coordination with Montana Fish, Wildlife and Parks and the USFWS.

- Prioritize road maintenance and obliteration to travel routes that directly affect streams versus roads that are ecologically disconnected from streams.
- Reduce aquatic habitat fragmentation through removal of man-made, native fish migration barriers. Where appropriate, create barriers to prevent invasion of non-native species.

## Riparian Management Zones

- Consider habitat conditions and the function and processes of riparian areas when proposing activities in order to provide shade, minimize nutrients and sediment and the potential impacts that may occur. Further, the analysis considers which species occur within the stream and the strength of that population.
- Maintain riparian resources by ensuring vegetation management only occur in the inner riparian management zone in order to restore or enhance aquatic and riparian-associated resources. Non-mechanical treatments, such as hand fuel treatments, prescribed fire, and sapling thinning, may be authorized with site-specific analysis as long as aquatic and riparian-associated resources are maintained.
- Ensure vegetation management occurs in the outer RMZs to meet desired conditions for fuel loading and silvicultural desired conditions, so long as those activities do not prevent attainment of desired conditions for wildlife and the inner RMZ.

## Soil and Geology

- Improve soil quality by implementing “National Best Management Practices for Water Quality Management on National Forest System Lands”, “Montana Best Management Practices” and “Soil and Water Conservation Practices.” In geologically hazardous areas, limit ground disturbances to sensitive soils and geologically hazardous landscapes through analysis.
- Complete the development of watershed restoration action plans for all identified priority watersheds and continue WRAP implementation and identification of essential projects in the Watershed Improvement Tracking database.
- Collaborate with Natural Resources Conservation Service to complete soil inventory and ecological site descriptions.

## Fire and fuels

Plan components recognize that fire has been and likely will remain a primary disturbance factor, particularly given the high proportion of the planning area that is designated wilderness or inventoried roadless areas. Fire can be expected to function at the upper end or even above the natural range of variation for acres burned. Given the importance of fire as a key ecosystem process, maintaining vegetation and forest diversity, sustaining fire adapted species and structures, and creating vegetation conditions at multiple scales that support and sustain native wildlife species in the short and long term are critical components of the Plan. Fire will play a role in all areas of the forest, whether natural or planned ignitions. The full range of fire management strategies will be used to achieve desired conditions, using appropriate response strategies based on potential resource benefits and risks.

Wildland fire objectives are based on factors such as movement of potential vegetation types toward desired conditions, fuel conditions, current and expected weather and fire behavior, topography, resource availability, and values to be protected. Social and economic considerations (e.g., smoke) may also affect objectives, as well as adjoining jurisdictions having similar or differing missions and directives.

Wildfires may be concurrently managed for one or more objectives (e.g., protection, resource enhancement) that can change as the fire spreads across the landscape. Strategies chosen for wildfires include interdisciplinary input to assess site-specific values to be protected. These strategies are used to develop incident objectives and courses of action to enhance or protect those values. Managers use a decision support process to guide and document wildfire management decisions that provide for firefighter and public safety, minimize costs and resource damage, and are consistent with values to be protected and management objectives. For prescribed fires, the decision document is the signed NEPA decision. To meet the plan's treatment objectives using prescribed fires, site-specific burn plans are developed which guide implementation. All prescribed fires are conducted in accordance with the Montana Department of Environmental Quality to comply with the Clean Air Act.

Wildland fire is one tool in the process of restoring the forests' fire-adapted ecosystems; in areas departed from desired conditions, the use of fire is often most effective when combined with mechanical treatments that further restore forest structure. Mechanical treatments are costly, so the capacity to implement such treatments across the landscape is limited. Strategic placement and design of mechanical treatments increases their effectiveness in protecting values to be protected.

Wildland fire may be the only viable tool in areas such as steep rugged terrain or remote areas where mechanical treatments are not feasible. Objectives in these areas may include higher fire intensities and higher levels of mortality to achieve vegetation structural changes that would not occur through other means to move toward desired conditions. Fuels specialists and silviculturists, along with other resource specialists, work to ensure land management objectives are met. Joint silviculture prescriptions and burn plans may be produced.

Management of wildland fire is coordinated across jurisdictional boundaries whenever there is potential for managing a wildfire or a prescribed fire on more than one jurisdiction (e.g., other national forests, tribal lands, State lands). This is done with the understanding that fire-adapted ecosystems transcend jurisdictional boundaries.

The following strategies related to air quality and fire management could be considered for application at a programmatic or project-level stage to support the maintenance or achievement of desired conditions, standards and guidelines.

- Improve and protect water quality by implementing “National Best Management Practices for Water Quality Management on National Forest System Lands”, “Montana Best Management Practices” and “Soil and Water Conservation Practices.”
- Complete effectiveness evaluations of fuel treatments to help understand how hazardous fuel treatments affect wildfire behavior, fire severity, and fire suppression effectiveness.
- Minimum impact suppression tactics (MIST) should be utilized in sensitive areas, such as designated wilderness areas, designated wild and scenic river corridors, research natural areas, botanical areas, riparian management areas, cultural and historic sites, developed recreation areas, special use permit areas that have structures, and historic and recreational trails. MIST techniques should also be used for post fire restoration activities.
- Integrate terrestrial ecosystem desired conditions into spatial patterns for fuel reduction treatments. Incorporate heterogeneity by increasing variation in tree spacing, enhancing tree clumps, creating canopy gaps, promoting fire resilient tree species, increasing the ratio of large to small trees, and using topographic variation (e.g., slope, aspect, and position) to guide treatment prescriptions.



## Terrestrial Vegetation

### General strategies for vegetation management and climate change

Climate change should be considered when designing vegetation management projects. For more information, refer to documents produced by the Northern Rockies Adaptation Partnership, the Reforestation-Revegetation Climate Change Primer for the Northern Region, and other publications as they become available. Relevant management strategies for terrestrial vegetation (Halofsky et al., in press) on the HLC NF include:

- Vegetation adaptation strategies should focus on conserving native tree, shrub, and grassland systems to increase resilience to low soil moisture and more frequent and extensive disturbances (such as wildfire, insects, and nonnative species). These strategies include managing landscapes to reduce the severity and patch size of disturbances, encouraging fire to play a natural role, and protecting refugia where fire-sensitive species can persist. Increase species, genetic, and landscape diversity (spatial pattern and structure). Use silvicultural prescriptions to reduce fuel continuity, reduce populations of non-native species, and use multiple genotypes in reforestation. Rare and disjunct species (such as whitebark pine and aspen) require strategies focused on regeneration, preventing damage from disturbance, and establishing refugia.
- Nonforested vegetation (rangeland) adaptation strategies should focus on increasing resilience through non-native species control and prevention. Use ecologically based non-native plant management to repair damaged ecological processes that facilitate invasion. Seeding of desired natives can be done where seed availability and dispersal of natives are low. Proactive management to prevent establishment of non-native species is critical (early detection-rapid response), including tactics such as weed-free policies, education of employees and the public, and collaboration among multiple agencies. Livestock grazing can also be managed through the development of site-specific indicators that allow for enhancement of plant health.

The framework to apply these strategies is provided by the suite of terrestrial vegetation plan components. Specific factors that should be considered in site specific prescriptions include:

- Consider future drought and site suitability when species, stock types, and densities for planting.
- Promote the development of large fire-resistant trees, especially ponderosa pine and Douglas-fir.
- Reduce stand densities and inter-tree competition to increase resilience to drought and meet desired conditions with respect to fire behavior.
- Provide for retention of biological legacies and connectivity with respect to the genetic flow of vegetation as well as wildlife.
- Focus improvement, restoration, or protection strategies on species or communities with that are vulnerable to climate change. The species or communities at risk to climate change impacts include ecotone areas (e.g. upper and lower treelines), ponderosa pine and dry Douglas-fir cover types, western larch, aspen, and whitebark pine.

### General strategies for forested and nonforested vegetation management

The following strategies should be considered for application at a programmatic or project-level stage to support the achievement of desired conditions, standards, and guidelines for vegetation.

- Develop a set of integrated target stands for the HLC NF that provides a consistent basis for the development of site-specific treatment prescriptions for forested vegetation. Target stands should

integrate elements of vegetation composition and structure with wildlife habitat, fire and fuels management, soil and water resources, and socioeconomic aspects (such as recreation, scenic integrity, and timber production). The desired conditions and other plan components provide a framework for development of these target stands.

- The full suite of possible commercial and noncommercial management options should be considered to achieve desired conditions composition, structure, and function of vegetation. Consider utilizing authorities such as stewardship contracting as appropriate.
- Consider opportunities to utilize livestock grazing as a means to achieve desired conditions especially in nonforested vegetation communities. For example, grazing may provide a mechanism to achieve the reduction of fine fuels in the wildland urban interface.
- The need for noxious weed control should be considered in all vegetation treatments.
- Continue re-measurement and maintenance of the forest inventory and analysis intensified grid inventory across the HLC NF to provide the best available data for broad and mid-scale analyses and monitoring.

Table 3 describes plant species which are of particular management interest. These are not species of conservation concern, but hold importance at the local level. Choose strategies that address these species in stand and landscape level prescriptions, where treatment and site conditions are suitable.

**Table 3. Considerations for tree and plant species of local management interest**

Common Name	Description and Management Considerations
mountain big sagebrush	Sagebrush is of local interest because fire exclusion and grazing have altered its condition and abundance. It is often present on ecotones which are vulnerable to climate change. Managers should consider methods such as the removal of colonizing conifers to promote resilient sagebrush communities in a variety of age classes. Prescribed fire is also a valuable tool, although mountain big sagebrush is readily killed and does not re-sprout after fire. Strategies for burning may include maintaining unburned adjacent areas to supply a seed bank, burning during periods of high humidity, burning and/or mechanically treating areas with competing conifers to reduce competition, and maintaining low fire intensity to promote re-establishment following fire.
antelope bitterbrush	Bitterbrush is of local interest because of its limited extent, high wildlife value, and decline due to conifer encroachment. It is often present on ecotones which are vulnerable to climate change. The removal of colonizing conifers is beneficial to this species, but it has low resistance to fire. When conducting prescribed burning, areas should be evaluated to determine the typical frequency of fire. Areas that support bitterbrush as the dominant species and do not typically carry fire well (e.g. rocky soils, dry sites) should be avoided to the extent possible; however low intensity fire can be used to reinvigorate deteriorating sites and increase regeneration.
mountain mahogany	Mountain mahogany populations are limited in extent on the HLC but provide unique and valuable wildlife habitat. Maintaining the health and extent of these communities should be a priority when designing projects. Prolonged drought, invasive species and potential for increased fire severity can change the dynamics of mountain mahogany systems. Management strategies may include reducing the spread of invasive species, managing grazing allotments to maintain native bunchgrasses, and replanting or seeding in areas of high severity fire due to the slow recovery time. The removal of colonizing conifers is beneficial, but it has low resistance to fire. When conducting prescribed burning, this species should be avoided or protected.
willow	Salix spp. is of local management interest because it occurs in scattered and isolated locations, and is often in decline. It is an important component of riparian and wetland sites. Management strategies include preventing excessive grazing, browsing, and trampling by cattle and/or ungulates, maintaining hydrology characteristics at a riparian sites, reducing impacts of timber harvesting, and ecological restoration. Fire can be used to promote vigorous sprouting of most willow species, though management should aim to prevent extremely hot (high severity) fire events which may cause root crown mortality. The removal of colonizing conifers in areas with willow can be beneficial, since most riparian shrubs, including willows, are shade intolerant.

Common Name	Description and Management Considerations
Rocky mountain juniper	Juniper is of local interest because without frequent fire it encroaches into nonforested plant communities and savannas, reducing their health, resilience, and forage values. Juniper can also be a ladder fuel in forest stands. It is often a component of dry ecotones which are vulnerable to climate change, provides shelter habitat, and is an important component of the native ecosystem diversity. Even though it is generally within its natural abundance at the broad scale, site specific factors should be considered in determining the desired condition of this species at the project level. Consider that the density and location of juniper should be designed so as not to detract from the resilience of nonforested and forested communities.
ponderosa pine	Ponderosa pine is of local interest due to its habitat value, decline due to fire exclusion, and the recent mountain pine beetle outbreak. Individual trees are not particularly vulnerable to climate change, but structural conditions (high density) can reduce resilience. Promote the extent and resilience of ponderosa pine communities through actions such as removal of competing conifers and ladder fuels, re-introduction of fire, and planting on suitable sites.
limber pine	Limber pine is of local interest because of its habitat value and decline due to white pine blister rust, fire suppression, climate change, and mountain pine beetle. There is a risk of the loss of disjunct populations. Enhance the resilience of limber pine communities through actions such as removal of competing conifers and ladder fuels, re-introduction of fire, and developing a program of seed collection, storage, and planting where appropriate.
quaking aspen	Aspen is of local interest because of its value as wildlife habitat and declining trend due to fire exclusion and conifer encroachment. While it can be favored by increased disturbance, prolonged drought (as is expected with climate change) can cause mortality. Promote aspen expansion and resilience through a variety of restoration treatments such as cutting of competing or understory conifers, re-introducing fire, altering grazing practices, installing wildlife exclosures, root-cutting or burning to promote suckering, allowing beavers to flood area to maintain and regenerate riparian areas, and/or planting seedlings or cuttings.
western larch	Western larch is of local interest because it is rare on the HLC NF due to its natural range being limited to the Upper Blackfoot GA, and where it occurs is an important long-lived fire resilient species. It is especially vulnerable to climate change. In the Upper Blackfoot GA, promote the extent and health of western larch within its range by removal of competing conifers, re-introduction of fire, and planting on suitable sites.
grasslands, shrublands, and savannas	These communities are of interest due to the influences of grazing and fire exclusion. They are often present in ecotone areas which are vulnerable to climate change. Prescribed fire is an important management tool, although limiting the potential introduction or spread of noxious weeds should be incorporated into project design. Consider management actions such as removal of small conifers to maintain and increase extent and resilience.
camas; bitterroot; beargrass; chokecherry; huckleberry	Camas, bitterroot, and beargrass are plants of cultural importance. Bitterroot is also the state flower of Montana. Chokecherry and huckleberry are popular for berry gathering by the public. These values should be recognized and vigorous populations should be maintained.

## Terrestrial Vegetation – Strategies for Specific Plan Components

### Vegetation Management Treatments (FW-VEGT-OBJ-01)

The purpose of this objective is to encompass all vegetation treatments (with the exceptions of livestock grazing and weed management) that may be used to move vegetation towards desired conditions. The acres specified reflect a minimum level. Acreage treated in a given year may vary, especially given the uncertainty in conditions suitable for planned and unplanned ignitions. This objective is based on historic information as well as future activities that were modeled to move the Forest toward desired conditions, and encompasses activities conducted in both forested and nonforested plant communities.

Examples of possible actions to achieve the objective are shown in Table 4. Activities may be conducted mechanically or by hand, and may include both commercial and noncommercial methods. Authorities such as stewardship contracting may also provide the mechanism to achieve management. This list is not exhaustive, but represents actions that most likely positively contribute to the objective. Strategies could include the use of single methods or practices, or combinations thereof. The treatments listed may meet more than one objective; for example, restoration of whitebark pine (FW-PRISK-OBJ-01) or providing commercial timber products (FW-TIM-OBJ-01 and FW-TIM-OBJ-02).

**Table 4. Examples of possible management actions for FW-VEGT-OBJ-01**

<b>Treatment type</b>	<b>Examples of possible management actions</b>
Planned or unplanned fire ignitions	Fire can be designed to meet objectives such as reducing conifer encroachment, reducing surface fuels, reducing tree density, increasing size class, promoting composition of fire-resilient species, diversifying age classes, increasing forage, creating suitable seedbeds for tree regeneration, and stimulating suckering of aspen or sprouting of desirable grasses and shrubs. A variety of fire severities could be appropriate based on the conditions and natural fire regime of the site.
Fuel reduction such as thinning, piling, chipping, and mastication	Conduct treatments to alter forest composition or structure and/or reduce fuel loading and distribution to levels appropriate for site specific objectives.
Removal of encroaching trees in nonforested ecosystems	Cut conifer encroachment and/or manage fire to maintain or create grass/forb/shrub openings and stimulate sprouting. These treatments may also promote savannas with vigorous grasses and shrubs and widely spaced large-diameter conifers.
Timber harvest	Use regeneration silvicultural systems (i.e., clearcut, seed tree, shelterwood or group/single tree selection) and intermediate harvests (i.e., commercial thinning, improvement harvest, sanitation or salvage cut) to create desirable conditions and habitat structures in forested areas. Conduct salvage after epidemic insect infestations or wildland fire in areas where other resources can be protected.
Tree planting and re-vegetation of native plants	Plant conifers or native plants to reforest areas after harvest, fire, or other disturbance. Where needed, use mechanical methods or prescribed fire to prepare sites for natural reforestation and/or planting. Revegetate disturbed sites with locally adapted native grass/forb/shrub species, including riparian areas, to provide values such as proper watershed function and wildlife habitat.
Noncommercial thinning of forests	Thin immature stands to improve individual tree and stand growth rates, species diversity, and short and long-term stand resilience.
Other	Treat insects and disease using integrated pest management practices. Allow beavers to flood areas to maintain riparian vegetation and function. Fell trees or snags to restore woody debris habitat in riparian management zones or to provide erosion control on disturbed slopes.

### Vegetation removal (FW-VEGT-GDL-01)

The intent of this guideline is to limit the unnecessary removal of native vegetation during other resource activities, while allowing that some vegetation removal is necessary to meet the purpose and need of “non-vegetation” projects. This is important for limiting the spread of noxious weeds and the need for rehabilitation and re-planting or seeding activities. Examples of resource activities to which this applies include but are not limited to trail or road construction and maintenance, installation of improvements such as fences or culverts, and permitted mining or recreation activities.

### Reforestation/Revegetation (FW-VEGT-GDL-03 and FW-VEGT-GDL-04)

The intent of these guidelines is to ensure that appropriate stock and seed are used for reforestation and revegetation projects. Strategies to meet these guidelines include:

- Adhere to Regional seed transfer zones and seed collection procedures for cones and native plants; and
- Ensure that reforestation and revegetation prescriptions are developed or reviewed by a qualified silviculturist and/or botanist.

## Forested Vegetation – Strategies for Specific Plan Components

### GA context for cover type and size class (FW-VEGF-DC-01 and FW-VEGF-DC-03)

These desired conditions display the desired ranges of cover types and sizes classes forestwide by broad potential vegetation type, based in large part on the natural range of variation analysis. These ranges apply to the broad scale across the HLC NF. Trends between the existing condition and the desired condition in each GA can vary from the forestwide values. When the relationship between the existing and desired condition is contrary to the forestwide trend, a DC is included in Chapter 3 of the Plan. In other instances, the desired trend is similar but the exact values or context varies in the GA. These considerations are summarized in Table 5 and Table 6 to complement the plan components. This is intended to highlight the unique characteristics of the GA to help guide management at that scale. The existing condition refers to the conditions present at the time of plan development.

**Table 5. Geographic area context for forestwide cover type desired conditions, FW-DC-VEGF-01**

GA	GA-level Cover Type Considerations
Big Belts	The existing and desired trend for the aspen/hardwood cover type is similar to forestwide. While the existing condition is similar, the desired condition indicates a higher proportion of the ponderosa pine cover type than forestwide, indicating that a focus on ponderosa pine restoration is important. The Douglas-fir dominated cover types (dry Douglas-fir and mixed mesic conifer) represent a higher proportion than forestwide, and although the desired trend is similar (decreasing), Douglas-fir dominated cover types should represent a higher proportion of this GA than forestwide. There is less of the lodgepole pine cover type than forestwide, and although the desired trend is similar (maintain), the proportion of lodgepole pine present should be less than forestwide. Although there is relatively little of the spruce/fir cover type, the desired trend is similar to forestwide (maintain). The ranges for the whitebark pine cover type are similar to forestwide.
Castles	There is a higher proportion of aspen present than forestwide, indicating that aspen restoration opportunities may be provided here. There is none of the ponderosa pine cover type present, although ponderosa pine and limber pine are desired similar to the forestwide DC. Therefore, promoting these species should be emphasized. The existing proportions desired trend for the Douglas-fir dominated cover types (dry Douglas-fir and mixed mesic conifer) and lodgepole pine are similar to forestwide, indicating a desired decrease in Douglas-fir types and maintenance of the lodgepole pine. There is a smaller proportion spruce/fir in the existing condition than forestwide, and the desired trend is to maintain or slightly increase. The proportion of the whitebark pine cover type and desired trend is similar to forestwide.
Crazies	There is none of the aspen/hardwood or ponderosa pine cover type present, although increases are desired. Although the overall proportion of the landscape dominated by Douglas-fir cover types (mixed mesic conifer and dry Douglas-fir) is similar to the forestwide average, the desired range is lower, indicating that decreasing these types is particularly important in this GA. Although the existing proportion and desired range of the spruce/fir cover type is higher in this GA than forestwide, the desired trend (maintenance) is similar. The proportion and desired trend of the whitebark pine cover type is similar to forestwide.
Divide	Although the existing proportion of the aspen/hardwood cover type is similar to forestwide, the desired range is higher. Although currently there are no ponderosa pine cover types present, ponderosa pine occurs especially east of the continental divide. The desired range is higher than the forestwide DC. Promoting ponderosa pine particularly east of the continental divide is important to contribute to the forestwide DC. The Douglas-fir dominated cover types (dry Douglas-fir and mixed mesic conifer) represent a higher proportion of the landscape than forestwide, and the desired trend is similar to forestwide, indicates that decreasing these types in this GA is important. The existing level of the whitebark pine cover type is lower than forestwide, but the desired range is higher,

GA	GA-level Cover Type Considerations
	indicating that promoting/restoring this cover type may be particularly important in conjunction with decreasing the spruce/fir type.
Elkhorns	Although the existing proportion of the aspen/hardwood cover type is similar to forestwide, the desired range is slightly higher, indicating that aspen restoration is important. The existing proportion of the ponderosa pine cover type is lower than forestwide, although ponderosa pine and some limber pine components occur. The desired range is similar to forestwide, indicating that ponderosa pine restoration is an important focus. The existing proportions of the Douglas-fir dominated cover types (dry Douglas-fir and mixed mesic conifer) are higher than desired, but to a lesser degree than forestwide, indicating that the need to reduce these types is less pronounced in this GA. The lodgepole pine cover type existing proportion is lower than forestwide, while the desired range is slightly higher. The proportion and desired range of the whitebark pine cover type is similar to forestwide.
Highwoods	There is more aspen present and desired than forestwide, indicating maintaining and restoring the aspen/hardwood cover type in this GA is particularly important. There is little to none of the ponderosa pine cover type present even though the desired range suggests that it could be increased; promotion of this type through planting may be appropriate in some areas. There is no whitebark pine present or desired in the Highwoods, unlike the forestwide condition.
Little Belts	The existing and desired trends of all forested cover types are similar to the forestwide DCs.
Rocky Mountain Range	There is more of the aspen cover type present and desired than forestwide, indicating that maintenance this cover type is important to contribute to the forestwide DC. There is less of the ponderosa pine cover type present and desired than forestwide, and it is generally dominated by limber pine. Only modest increases in this type could be made in a few site specific locations. The existing and desired proportion of the spruce/fir cover type is much higher than forestwide, although the same desired trend of maintenance is appropriate. The existing proportion of whitebark pine is slightly higher than forestwide, indicating opportunities for maintenance and restoration.
Snowies	The existing and desired levels for the aspen/hardwood cover type are consistent with forestwide. There are much higher levels of the ponderosa pine cover type than forestwide, and this proportion overlaps the desired range which is higher than forestwide as well. This is due to the genetically unique ponderosa pine communities in the Little Snowies. Maintaining and enhancing these forests is important in this GA. There are higher proportions of the Douglas-fir dominated cover types (dry Douglas-fir and mixed mesic conifer) present than forestwide, and the desired ranges are lower, indicating a need to focus on decreasing these types. There is more of the spruce/fir cover type than forestwide (primarily in the Big Snowies), and the desired range is higher as well. There is no whitebark pine present or desired, unlike the forestwide condition.
Upper Blackfoot	There is very little aspen/hardwood cover type present, but the desired range indicates that increases are appropriate. There is little of the ponderosa pine cover type, although ponderosa pine and limber pine do occur and the desired range is similar to forestwide; therefore, promoting these species should be emphasized. The existing proportion and desired range of dry Douglas-fir is consistent with forestwide averages. However, the abundance of the mixed mesic conifer cover type is higher than forestwide, and the desired range is similar, indicating that focusing on decreasing this type (Douglas-fir on cool moist sites) is important. Western larch only occurs on this GA and should be promoted. The existing proportions and desired ranges for the lodgepole pine, spruce/fir, and whitebark pine cover types are similar to the forestwide levels and desired trends.

**Table 6. Geographic area context for forestwide size class desired conditions, FW-DC-VEGF-03**

GA	GA-level Size Class Considerations
Big Belts	The desired range indicates less of the small and medium classes is appropriate than forestwide, but the existing condition is similar, indicating a need to focus on reducing these classes in this GA.
Castles	There is less of the seedling/sapling class present and the desired range indicates that lower proportions are appropriate than forestwide. There is more of the small tree class present than the forestwide average, but the desired range is similar, indicating a need to reduce the small tree class in particular. There is slightly more of the large tree class present than forestwide, and the desired range is slightly higher than forestwide. There is more of the very large tree classes present than forestwide, and the desired range is lower; the existing condition is generally within this range.
Crazies	The existing condition contains a higher proportion of the large tree class than forestwide, and a

GA	GA-level Size Class Considerations
	similar desired range, indicating that opportunities to promote large trees may be highlighted.
Divide	There is more of the small class than forestwide, with a similar desired range, indicating that reducing this size class should be emphasized. There is more of the very large sizes class than forestwide, and a higher desired range, indicating the potential to focus on increasing this size class.
Elkhorns	The Elkhorns contain none of the very large tree class, but have a desired range similar to forestwide. Managing the resiliency of younger stands to promote development larger trees and species that grow to large sizes should be a focus in this GA.
Highwoods	The current condition is not diverse, with no seedling/sapling or very large classes, indicating that diversification of size class is important. The desired range for the large size class is higher than forestwide, and the current amount lower. Similarly, there is none of the very large tree size class but the desired range indicates a similar level as forestwide. Promoting individual tree growth or thinning smaller trees to increase the average size class should be emphasized.
Little Belts	The exact values vary, but both the existing condition and desired range for size class in this GA are consistent with the forestwide DCs.
Rocky Mountain Range	This GA has a higher proportion of the seedling/sapling class than the forestwide average, which is appropriate to maintain because the desired range is similar.
Snowies	The Snowies have more of the large and very large tree classes in the desired condition than forestwide, but essentially none in the existing condition. This GA also has a much higher amount of the small tree class than forestwide. Managing densities and compositions to develop large trees, especially in the ponderosa pine in the Little Snowies, should be emphasized.
Upper Blackfoot	The exact values vary, but generally both the existing condition and desired range for size class in this GA are consistent with the forestwide DCs.

### Large/very large live trees and concentrations (FW-VEGF-DC-05, FW-VEGF-DC-06)

FW-VEGF-DC-05 and FW-VEGF-DC-06 emphasize the importance of large and very large live trees, in terms of the quantity of individual trees and the distribution of large/very large size concentrations. These components contribute to the long-term persistence of native species. Large live trees are important in creating and sustaining forests resilient to disturbances, in particular if they are fire-tolerant species. They have the potential to survive fires, providing seed to reforest burned areas, and provide live components in landscapes dominated by dead trees. They are often present at low densities, forming an overstory canopy in stands dominated by smaller trees. Large live trees can occur in any of the size classes, at varying densities but too few in numbers to offset the abundance of smaller trees to be classified into large size classes. It is likely that there has been a downward trend in the presence and/or density of large live trees over the past century due to harvest practices, fires, and insect and disease activity. Fire will continue to be a primary influence. Stand density is an important factor that influences the development of large trees. Reducing the density of young forests may help develop large tree components in the future.

Although vegetation management affects a relatively small proportion of the landscape compared to natural disturbances, providing for these components remains important at the project scale. A guideline for the retention of large and very large live trees at the project level was developed to help the HLC NF meet this desired condition, as described below (FW-GDL-VEGF-01).

#### *FW-VEGF-GDL-01*

The intent of this guideline is to help achieve the desired conditions by retaining large and very large trees at the project level. Large and very large trees are important to contribute to future snag resources, but also other ecosystem functions such as seed dispersal and wildlife habitat. Because the retention of live trees can generally be accomplished safely and feasibly within units, and because surveys of these components outside of treatment units would be prohibitive, the application of this guideline is an average

across all treatment units rather than an average across a larger landscape area (such as a project area). Additional clarifying information related to the exceptions stated is provided in Table 7.

**Table 7. Considerations for FW-GDL-VEGF-01, large and very large live trees**

<b>Statement in FW-GDL-VEGF-01</b>	<b>Intent and Description</b>
<i>Standard applies as an average across all treatment units in a project. Retained trees need not be present on every acre and may be clumped.</i>	The intent is to provide large and very large live trees across treated areas, distributed as appropriate for the site. Trees need not be retained on every acre. This applies as an average across the treatment units. All very large trees that occur in lodgepole pine forests or the cold broad potential vegetation group are to be retained due to their rarity, unless a stated exception applies.
<i>If the minimum amount of large and very large live trees are not present, leave all that are available plus enough medium sized trees to achieve the standard. If insufficient medium sized trees are available, leave all that are available.</i>	If the minimum numbers of large and very large trees are not available in treatment units, then medium trees may be substituted as needed to achieve the minimum numbers. If no suitable trees of any size are present, for example in severely burned areas, it is possible that minimums will not be met. In this case, as many live trees as possible should be retained.
<i>Trees preferred for retention are the longest lived, healthiest, windfirm, most fire adapted species available on the site.</i>	The intent is to leave trees that are most likely to survive in the long time and provide ecosystem functions such as forest resilience, future potential seed sources, wildlife habitat, etc.
<i>Exceptions may occur when there are none (or fewer) desirable trees available due to insects, disease, lack of windfirmness, or unavoidable operational limitations.</i>	The intent is to avoid dysgenic effects by allowing that if all or some of the available trees are undesirable due to insect or disease infestation, or if the likelihood of their persistence is very low (e.g. shallow rooted on an exposed windy site) they need not be retained. In this case, medium sized trees should be included if available to meet the minimum numbers. "Unavoidable operational limitations" are intended to cover specific circumstances that render the retention of particular trees impossible such as when they are located along fire lines, private property lines, or essential harvest corridors; or they are identified as a specific safety hazard that cannot be avoided. In the event that trees intended for retention are killed or damaged, they should be left onsite to provide woody debris and replacement trees identified if possible. If available, prescriptions should consider retaining extra trees to cover the possibility of tree mortality in units that will be prescribed burned.
<i>If trees in excess of the minimums are available, site specific prescriptions may require either removal or retention based on project and stand objectives.</i>	If more than the minimum levels are available, flexibility is granted to project prescriptions to specify retention. Integration of site conditions and objectives should determine leave tree density, patterns, species, and sizes. In general, large and very large trees are preferred to retain, but sometimes removal may be appropriate, e.g. to reduce insect problems or to establish desired densities and enhance the health of other large trees. Consideration of long-term conditions is important. For example, leaving smaller trees of desirable species and vigor that can persist indefinitely may be preferable to leaving larger trees of less desirable species or condition, because of the long-term potential to achieve desired conditions. The potential for development of late successional forest or old growth may also be a consideration.
<i>Retained large and very large live trees may also function as replacement snags, and/or be mixed in clumps with snags, to meet FW-STD-VEGF-02.</i>	Live trees to retain may be located on inoperable areas within treatment units, such as riparian/wetlands or rocky outcrops, and may be mixed with snags designed to achieve FW-GDL-VEGF-02. Such clumping is encouraged to the extent that it reflects natural disturbance patterns.
<i>Exceptions may occur where there are issues of human safety in designated campgrounds and developed recreation sites, permitted ski areas, utility lines. See FW-DC-DEVREC 05, LB-GDL-SHOWSKI-02, and RM-DC-TETONSKI 02.</i>	This exception allows that live tree retention does not apply in specific areas, primarily those developed for human uses, and that the desired conditions for these areas shall drive vegetation management and the determination of how many, if any, large and very large live trees are retained.



### Old growth (FW-VEGF-DC-07)

Old growth forest is defined by specific characteristics described in *Old growth forest types of the Northern Region* (Green et al., 1992). In the future, new best available science could become available and, if so, should be used to define old growth. The function of FW-VEGF-DC-07 is to highlight the importance of planning for long-term development and retention of old growth. The natural range of variation analysis concluded there is likely less old growth in the existing condition than there was historically. However, there is no quantitative desired minimum or maximum level of old growth specified because such a specification would be arbitrary given the lack of available data. The array of other desired conditions for forest vegetation should support appropriate levels of old growth over time and contribute to the needs of wildlife species associated with late successional forest. In rough terms, the desired condition calls for old growth levels that are similar to or greater than the existing amounts.

Old growth may be lost to disturbances and gained through natural succession. Although vegetation management affects a small proportion of the landscape compared to natural processes, old growth considerations are important at the project scale. Two guidelines were developed to help the HLC NF meet the desired condition. These components work together to contribute toward the desired old growth condition by 1) not removing existing old growth by actions within FS control except in limited cases; 2) allowing for treatments within old growth for specific purposes; and 3) promoting the development of future old growth.

### FW-VEGF-GDL-04

The intent of this guideline is to specify the conditions under which vegetation management may occur in old growth to generally maintain or increase existing amounts of old growth.

It is the intent that old growth be managed at the stand scale, with larger stands or contiguous patches of old growth being more valuable than small, fragmented old growth stands. There is no known minimum patch size for old growth currently identified consistently in the literature; the minimum area needed to provide functional old growth habitat for wildlife species likely varies. The larger the old growth patch is, the more likely it is to provide desirable habitat conditions. For the purposes of stand management and mapping, it is infeasible to manage for patches smaller than 5 acres.

To meet this guideline, project analyses must identify at the stand level if proposed treatment areas include old growth, using a reasonable and accurate approach. Determining whether a stand is old growth requires some level of field data collection or validation. The definition and patch size of old growth should be determined at the project level using the best available science. Generally, stands should be delineated based on the FSH 2409.17, or other current direction. When determining if a stand is old growth, the current best available science should be used, which at the writing of the plan is *Old growth forest types of the Northern Region* (Green et al., 1992). This publication includes not only minimum quantitative criteria, but also additional characteristics and qualitative descriptions. The minimum criteria and stand measurements should be a guide only, and the other qualitative factors should be considered when determining if a stand should be considered old growth.

Next, the project must determine if any of the appropriate purposes or exceptions listed in the guideline for treating in old growth apply. If none of these purposes or exceptions apply, then management would not occur in the old growth stand(s). If one or more of the allowable treatment purposes apply, then management could occur in the old growth stand(s) so long as the minimum quantitative old growth criteria can be maintained, as defined by Green and others (1992) or other best available science. If one or more of the exceptions apply, then treatment may occur in the old growth stand to remove its old growth characteristics. Additional information is provided in Table 8.

Fire is a key ecosystem process that influences the natural development of the desired natural array of vegetation conditions, including old growth. In the case of landscape-scale prescribed burns, old growth stands may be difficult to identify, and designing the burn to avoid or achieve desired results may be challenging. Tactics such as modifying the fuels in and adjacent to old growth stands, altering ignition patterns, or modifying unit boundaries may be needed to achieve the desired results in old growth.

**Table 8. Considerations for FW-VEGF-GDL-04, old growth**

<b>FW-GDL-VEGF-04</b>	<b>Intent and Description</b>
<i>In old growth stands, vegetation management should not modify stand characteristics to the extent that the stand no longer meets the definition of old growth.</i>	The intent is to ensure that vegetation management generally does not remove existing old growth. In addition to the minimum old growth criteria described by Green et al (1992), or other best available science, site specific prescriptions should strive to retain other habitat characteristics of old growth such as downed wood, snags, and broken tops.
<i>Old growth should be identified at the project scale based on the best available science regarding its characteristics and patch size.</i>	The best available science should be used at the project scale to inform the identification of old growth characteristics and patch size. The minimum functional patch size of old growth may vary by type and wildlife species of interest.
<i>Identification and mapping of old growth should be dynamic through time.</i>	It is not expected that the Forest maintain a comprehensive map of all old growth, as conducting such an inventory would be nearly impossible and subject to constant change. However, to the extent that old growth stands are identified through project design, the maintenance of a map may help ensure consistent management of them through time. Mapped polygons of old growth are not static; that is, an area identified as old growth is not necessarily designated for old growth management into perpetuity, as it may be impacted by natural mortality agents.
<i>Vegetation management that occurs within old growth should be designed to achieve one or more of the following purposes:</i>	This statement in the guideline acknowledges that management of old growth for specific purposes may be acceptable and, in some cases, encouraged. At the project level, the decision of whether to treat within old growth or not should consider the purpose and need of the project as well as the resources associated with old growth forest. In some cases, although treatment could be allowed, old growth stands may best meet wildlife and other goals in an untreated condition.
<ul style="list-style-type: none"> <li>• <i>Maintain or restore old growth habitat characteristics and ecosystem processes.</i></li> </ul>	These purposes encourage management designed to retain and enhance old growth by maintaining or restoring conditions appropriate for the old growth type. Management actions that may meet these purposes could include but are not limited to hand slashing of ladder fuels, commercial removal of smaller diameter trees to restore resilient composition and structure, or burning piles or low severity prescribed burning especially in dry forest types. The desired condition and treatment methods should vary by old growth type.
<ul style="list-style-type: none"> <li>• <i>Increase old growth forest resistance and resilience to disturbances or stressors that may have negative impacts on old growth characteristics (such as drought, wildfire, bark beetles).</i></li> </ul>	
<ul style="list-style-type: none"> <li>• <i>Reduce fuel hazards adjacent to exceptional values at risk.</i></li> </ul>	This purpose covers the possibility that old growth may surround or be adjacent to specific values at risk (such as a cultural site or private inholding), and the modification of fuels may be needed to protect that value.
<ul style="list-style-type: none"> <li>• <i>Address human safety.</i></li> </ul>	This purpose covers the possibility that human safety concerns, such as decadent trees in recreation areas or adjacent to a private dwelling, could occur. Actions taken should impact the overall old growth patch to the minimum degree needed to address the safety concern.
<i>Exceptions to this guideline are allowed under the following circumstances. In these cases, old</i>	This statement allows for specific exceptions under which an old growth stand may be substantially modified or removed from the

FW-GDL-VEGF-04	Intent and Description
<i>growth stands may be modified to the extent that they no longer meet the definition of old growth. These exceptions should be applied to the minimum extent necessary.</i>	landscape. It is expected that these circumstances would be relatively infrequent. When removals of old growth are deemed necessary, project design should consider opportunities to promote future old growth development in other stands and emphasize retention of other old growth stands.
<ul style="list-style-type: none"> <li><i>Removal of old growth characteristics is necessary to provide for public safety in campgrounds and other designated recreation sites, administrative sites, utility corridors, permitted ski areas, and areas surrounding or immediately adjacent to infrastructure or privately owned improvements.</i></li> </ul>	This exception allows that the retention of old growth may not be feasible given the safety concerns within specific areas that are highly used by the public; for example, when old growth trees are structurally unsound within a recreation site or they are too close in proximity to utility lines or other infrastructure.
<ul style="list-style-type: none"> <li><i>The old growth stand is expected to experience stand-replacing mortality in the short term (5-10 years) as indicated by progressing tree mortality (such as an ongoing insect infestation), and altering or removing the stand is crucial to meeting other project-level objectives and timeframes.</i></li> </ul>	This exception allows for the removal of old growth that is expected to die due to natural causes in the near term. It is intended to apply to stands that are clearly in the process of “unraveling” so that other resource objectives (such as hazardous fuel reduction) can be achieved in a timely manner. It is not intended to apply to stands that are simply decadent, declining, subject to minor mortality agents, or that are at risk to future wildfire or insects, because that is by definition the nature of many old growth stands.

#### FW-VEGF-GDL-05

The intent of this guideline is to guide vegetation project design to either encourage the future development of old growth or to protect existing old growth where appropriate. This reflects the dynamic nature of old growth in time and space, and helps ensure that the old growth desired condition can be met. At the landscape level, possible management strategies may include the following:

- Consider project objectives to develop future old growth in forested areas where existing old growth or late successional forest is uncommon; where shape of old growth patches is largely linear and narrow; where old growth patches are relatively small; where connectivity of old growth patches is poor; and/or where the existing old growth does not represent the diversity of forest types present on the landscape.
  - Consider improving younger stands adjacent to old growth with the purpose of hastening development of old growth and thus increasing the old growth patch size. For example, when harvesting in stands adjacent to small patches of old growth, consider increasing the potential for these stands to develop into old growth in the future by retaining the compositional and structural features that would contribute to old growth conditions (such as reserve trees, large downed wood, and long-lived species).
  - Consider treatments in younger forests to develop old growth characteristics, particularly in the warm dry broad potential vegetation group.
  - Stands that were identified as desirable future old growth or late successional habitat under previous project analyses should be considered for protection, maintenance, or treatments to promote old growth development.
  - The development of future old growth via retention or improvement of younger stands should be emphasized in riparian areas; areas away from open roads or where patch size is large enough to limit the impact of potential firewood cutting along roads; and areas important for wildlife species that prefer late successional forest habitat.

- Consider treatments near old growth to reduce fire hazard, alter potential fire spread or fire severity, or reduce potential insect or disease outbreak that may spread to old growth.
- Consider the spatial location of old growth as desired refugia patches when designing projects that have a purpose of altering fire behavior at the landscape scale.
- Consider retaining leave tree buffers of higher density in treatment units to limit windthrow damage in adjacent old growth (depending on the vegetation type).

### Snags (FW-VEGF-DC-08)

This desired condition recognizes that an array of snag sizes is important across the landscape, and that quantities and spatial distribution are variable depending on disturbance regimes and vegetation types, as represented by snag analysis groups (see appendix D). Snags are primarily created through natural disturbance processes. The other forested vegetation plan components help ensure that the desired snags are present by providing a natural array of compositions and structures across the landscape. Larger diameter snags are particularly important, due to their relatively low contribution to fire hazard levels and their desirable contribution to soil function and wildlife habitat. Snag presence on managed lands is more dependent on human actions than in remote areas.

Desired snag conditions were not developed for each GA, due to a lack of data available to inform the natural range of variation with confidence at that scale. In addition, the application of GA-level desired conditions could be problematic in small GAs that may be subject to periodic disturbances that create a boom-and-bust situation for snags (i.e., the scale is too small to encompass the natural temporal variability of snag conditions). However, based on the abundance of snags at the writing of the plan, it may be appropriate to consider the following GA-level snag trends when designing projects:

- Promote large/very large tree growth and large/very large snag retention in the Divide, Highwoods and Snowies GAs, because these large snags are essentially absent.
- Promote snag retention of all sizes in the Highwoods, Little Belts, and Snowies, where overall quantities of snags are lower than other GAs and the Forest as a whole.
- A reduction of medium snags in the Rocky Mountain and Upper Blackfoot GAs would be acceptable because they are abundant at relatively high levels.

In managed areas, it is important to recognize opportunities to develop or retain snags of desired species and sizes. One guideline (FW-VEGF-GDL-02) is developed to ensure that vegetation management contributes to the snag desired conditions.

#### *FW-GDL-VEGF-02*

This guideline is written to ensure the snag desired condition can be met and applies to any vegetation management treatment, such as timber harvest and prescribed fire, based on concepts found in the best available science for the HLC NF, (Bollenbacher, Bush, Hahn, & Lundberg, 2008). The snag guideline applies as an average across a project area, so that the condition of snags may be considered at a scale larger than treatment units. This should allow projects to design snag retention requirements as needed to best meet the unique conditions of each project. Snags would not necessarily be required to be left in treatment units, depending on the landscape context. Additional information to clarify the guidance and exceptions for this standard is provided in Table 9.

**Table 9. Considerations for FW-GDL-VEGF-02, snags**

Statement in FW-GDL-VEGF-02	Intent and Description
<p><i>Snags per acre and percent distribution apply as averages across the project area. Snags need not be present on every acre or within treatment units; they may be clumped on the landscape. However, snag retention within treatment units should be considered when it is safe and operationally feasible to do so, especially if the most desirable snags are present in those areas, and/or if the treatment unit is greater than 40 acres in size.</i></p>	<p>Snags should be unevenly distributed and clumpy. <u>Snag retention is not required within treatment units</u>, but should be considered if safe and operationally feasible, particularly in large units or where the best snags (type, size, or location) is found within treatment units, to ensure that the best snags are left well-distributed on the landscape. Snags are most desirable in riparian areas and near meadows or other wildlife foraging areas. Snags should be located away from open roads, when possible, to limit the losses to firewood cutting. Project design and prescriptions should consider these factors as well as the landscape condition of snags across the project area when determining if snag retention within treatment units is appropriate. Snag retention is likely to be unsafe or infeasible particularly along fire lines, private property lines, and essential harvest corridors.</p>
<p><i>Locate snags 300' or farther from a road that is open to firewood cutters, when possible.</i></p>	
<p><i>Due to their rarity, very large snags should be retained in treatment units unless operational or safety limitations are encountered. If these snags are felled, they should generally be left onsite as woody debris as long as the resulting condition is consistent with site-specific woody debris retention objectives.</i></p>	<p>Very large snags warrant special consideration due to their rarity. While retention within treatment units is not required, it should be strongly considered where safe and operationally feasible. If very large snags are felled, they should be left onsite as long as doing so does not elevate the average downed woody debris component above project objectives.</p>
<p><i>If fewer than the minimum snags are present across the project area, live trees shall be retained (or snags shall be created) in treatment units to meet the quantities above if available, with a preference for the largest and most decadent trees. Trees with rot or wildlife use are preferred. Live trees retained in this instance may also be used to meet FW-VEGF-GDL-01.</i></p>	<p>These statements allow that if the minimum number of snags are not present across the project area, the standard can be met by creating new snags, leaving live tree replacements, or a combination within treatment units. Snags could be created through methods such as girdling or prescribed fire. Residuals damaged by harvest could also be selected. It is encouraged to retain clumps of snags and live trees to meet both FW-GDL-VEGF-01 and 02 in desirable locations such as rocky outcrops, riparian areas, or near meadow and wildlife foraging areas. In the event that snags intended for retention are cut or toppled by fire, they should be left onsite to provide woody debris and replacement snags or live trees retained if possible. The species preferred for snags, and live tree replacements, reflects those that have the most longevity.</p>
<p><i>Snag species preference in order from highest to lowest is: ponderosa pine, western larch, whitebark pine, limber pine, Douglas-fir, hardwoods (aspen or cottonwood), Engelmann spruce, subalpine fir, lodgepole pine.</i></p>	
<p><i>Exceptions may occur where there are issues of human safety, especially in designated campgrounds and developed recreation sites, permitted ski areas, utility lines, prescribed burn control lines, areas adjacent to infrastructure or private ownerships. Also see FW-DC-DEVREC 05, LB-GDL-SHOWSKI-02, and RM-DC-TETONSKI 02.</i></p>	<p>This exception allows that snag retention does not apply in specific areas, primarily those developed for human uses, and that the desired conditions for these areas shall drive vegetation management and the determination of how many, if any, snags are desirable.</p>
<p><i>Additional snag retention requirements above these minimum levels may be specified and applied in project-level NEPA analyses to meet project-level objectives.</i></p>	<p>Project prescriptions may specify additional retention requirements if needed to meet other project objectives. The development of snag prescriptions should consider the following:</p> <ul style="list-style-type: none"> <li>- Safety and operational feasibility.</li> <li>- Existing distribution, abundance, location and characteristics of snags in the larger landscape and/or project area, relative to snag availability;</li> <li>- The proportion of area influenced by management activities relative to the proportion of area influenced primarily by natural disturbances;</li> <li>- Current disturbances in the project area or the broader landscape that may be providing snags of desired characteristics, either in the short term (for example,</li> </ul>

Statement in FW-GDL-VEGF-02	Intent and Description
	<p>fire) or longer term (such as, root disease, dwarf mistletoe). This may result in more focus on retaining live trees to meet future snag needs.</p> <ul style="list-style-type: none"> <li>- Snag characteristics (species, size, condition) within treatment units relative to availability of these characteristics across the landscape.</li> <li>- The long and short-term perspective that snags are a relatively short-term component (most become downed wood within a few years or decades).</li> <li>- The role of live trees that contribute in the far future to desired snag habitat.</li> <li>- Other resource desired conditions or associated plan components (social, economic).</li> </ul>

### Coarse woody debris (FW-VEGF-DC-09)

The desired conditions for coarse woody debris recognize that downed wood is important across the landscape, and that quantities and spatial distribution should be variable. While an overall average amount is specified at the broad scale, the desired condition recognizes the wide variability in the quantity and distribution, encompassing both areas with little to no downed wood and those with high amounts, driven primarily by natural disturbance processes but also management objectives. The desired condition is based on information developed by Brown and others (2003), which is the best available information to depict a natural range of woody debris for the ecosystems found on the HLC NF.

Coarse woody debris on managed lands is more dependent on human actions than in more remote areas. In managed areas, it is important to recognize opportunities maintain appropriate amounts of coarse wood. Therefore, one guideline (FW-VEGF-GDL-06) is developed to ensure that vegetation management contributes to the desired condition.

#### **FW-GDL-VEGF-06**

This guideline is written to ensure the coarse woody debris desired condition can be met and applies to any vegetation management treatment, such as timber harvest and prescribed fire, based on concepts developed by Graham and others (1994). The values presented in the guideline are different than the broader natural range of woody debris presented in FW-VEGF-DC-09 because it represents a specific threshold to ensure managed areas contribute toward to the overall desired condition. Additional information to clarify the guidance and exceptions for this guideline is provided in Table 10.

**Table 10. Considerations for FW-VEGF-GDL-06, coarse woody debris**

Statement in FW-GDL-VEGF-03	Intent and Description
<i>The requirement should be met immediately following completion of all project activities.</i>	The intent is that at least the minimum amount of downed wood be present after all project-related activities are completed. For example, a timber harvest unit may contain less downed wood at the completion of the logging activity if subsequent activities such as prescribed burning will result in the desired amount.
<i>The guideline applies to any vegetation treatment in forested communities, including timber harvest and prescribed fire. This guideline does not apply in nonforested vegetation communities or in open forest savannas that may occur in the warm dry potential vegetation type.</i>	The guideline is applicable only to forested sites and the quantities apply as averages across each treatment unit to ensure that soil nutrient cycling occurs to contribute to long term site productivity.
<i>The guideline applies as an average across each</i>	

Statement in FW-GDL-VEGF-03	Intent and Description
<i>vegetation treatment unit; the downed wood may be irregularly distributed and not every acre in the unit needs to have the desired average.</i>	
<i>Downed wood should consist of intact pieces of a variety of species, sizes and stages of decay, depending on site conditions. Prescriptions should emphasize retaining larger debris (pieces 10" diameter and 10' in length or greater) where possible, which are higher value to wildlife.</i>	While any wood greater than 3" diameter would be appropriate to meet the guideline, larger pieces are preferred where available due to their value to wildlife and low contribution to fire hazard.
<i>If the minimum quantity cannot be met, live trees or excess snags should be felled, or dead wood added to the site if available.</i>	Excess live trees or snags are those that are not identified for retention to meet FW-GDL-VEGF-01 or FW-GDL-VEGF-02. Slash from landing piles may be an example of a source of dead wood, if needed, to distribute across the site.
<i>Exceptions to the guideline may occur where there is elevated concern with fire risk (recreation sites, areas adjacent to infrastructure or private ownerships, Wildland Urban Interface areas, utility lines, etc), or where sufficient live trees or snags are not available.</i>	The exceptions are wide-reaching to reflect the importance of flexibility in managing downed wood. There may be a need to manage lower amounts of downed wood. In such instances, a site specific analysis and prescription may be developed to support an alternative minimum coarse woody debris guideline. This prescription should be developed through interdisciplinary interaction, at a minimum between silviculture, fuels, wildlife, and soils specialists, and consider the following factors: <ul style="list-style-type: none"> <li>- The condition and abundance of coarse woody debris at the landscape scale.</li> <li>- The condition of snags, which represent the short term contribution to woody debris.</li> <li>- The proportion of area influenced by management relative to that influenced by natural disturbances.</li> <li>- Other resource desired conditions.</li> </ul>
<i>An upper threshold of desired wood may be specified in project-level NEPA analysis, considering all project objectives such as fuel loading, wildlife habitat, and riparian area considerations.</i>	The guideline only specifies a minimum threshold. In most cases, it would be appropriate to specify an upper limit for downed wood in project-level NEPA as well to guide implementation. Design criteria for the upper limit of downed wood should be based on similar considerations as described above, including balancing all resource needs such as fire/fuel loading, wildlife habitat, and riparian functions.

### Early successional forest patches (FW-VEGF-DC-10)

This desired condition addresses forest pattern related to early successional (seedling/sapling) forests, which are considered openings. Analyses of the natural range of variation indicates wide ranges in size of early successional forest patch sizes. Characteristics of forest patches and patterns related to early successional forest openings change relatively rapidly compared to mid and later successional forests. This is because seedling/sapling stands transition relatively quickly into mid-successional stands, after which they can remain in a closed canopy, densely forested condition for many decades if not altered by disturbance. Both fire and timber harvest can be possible management tools for maintaining the desired amount and distribution of early successional forest patches.

Managing for an array of average patch sizes within the natural range will contribute to habitat connectivity and resilience. The average patch size is an important monitoring indicator, but specific

projects should create patches across the natural array. For example, it may be desirable to manage for small patches in specific areas where the mature matrix forest is important for connectivity in the short term. Fire will continue to be the primary activity that creates large openings. Harvest is also a tool to create desired conditions including, but not limited to, in areas suitable for timber production, especially where the use of fire is limited (such as wildland urban interface areas). See also information for FW-TIM-STD-08, which address patch sizes specifically in relation to maximum openings created by harvest.

## General Strategies for Plant Species at Risk

The following strategies related to plant species at risk could be considered for application at a programmatic or project-level stage to support the maintenance or achievement of desired conditions, standards and guidelines.

- Evaluate areas proposed for ground disturbing activities for the presence of occupied or suitable habitat for at-risk species, including conducting pre-field review and field surveys. Provide opportunities for mitigation and protection to maintain occurrences and habitats that are important for species sustainability.
- Focus botanical surveys on increasing known information about other plant species (Montana state species of concern, newly discovered species, etc) on the Forest, including information that may warrant changing their status to species of conservation concern in future species of conservation concern list revisions by the Regional Forester. If such information is found, the Forest should consider the species according to at-risk plant plan components until such time that the Regional Forester makes a determination on whether to designate it as a species of conservation concern.
- Monitor known occurrences of at-risk species within project areas and forestwide to determine trend data of individual occurrences, to contribute to trend data at the species-range level, and to document impacts of project activities (noxious weed treatments, vegetation treatments, restoration treatments, etc), prioritizing those project activities for which species specific data is currently lacking.

### Whitebark pine (FW-PRISK-DC-02, FW-PRISK-OBJ-01)

Whitebark pine is currently the only known plant species which is considered under the Endangered Species Act, as a candidate species. Desired condition FW-PRISK-DC-02 is designed to sustain or restore whitebark pine and minimize potential threats. Objective FW-PRISK-OBJ-01 is included to acknowledge that restoration activities are needed to achieve the desired condition. Whitebark pine habitat is present in most of the GAs, often in unroaded areas. The contributions of whitebark pine communities includes habitat for wildlife species, scenic character, forest ecological resilience and health, maintenance of naturalness and natural processes, and trending forests towards natural range of variation for forest composition and structure. Vegetation treatments that contribute to this objective may also contribute toward FW-VEGT-OBJ-01. Possible restoration strategies and activities include:

- Prune and/or daylight thin whitebark pine to reduce incidence of blister rust and competition from other tree species.
- Plant rust-resistant white pine to reforest areas after harvest or fire.
- Conduct even-aged harvest or prescribed burning to create suitable sites for natural or artificial reforestation.
- Reduce fuels in whitebark pine stands to increase their resilience to fire.



- Protect high value trees, such as blister rust resistant trees and large healthy cone producing trees from bark beetle mortality during outbreaks, using pheromones or insecticide applications.
- Collect seed from whitebark pine trees exhibiting rust resistant traits. Participate in the Regional breeding program as necessary by collecting cones and scion as needed.

Restoration of whitebark pine within recommended wilderness areas requires special consideration. The plan explicitly allows for implementation of whitebark pine restoration within recommended wilderness so long as “the social and ecological characteristics that provide the basis for wilderness designation are maintained and protected.” Site-specific analysis is needed prior to applying activities. The publication, “A Range-Wide Restoration Strategy for Whitebark Pine” (Keane et al., 2012) includes considerations when proposing restoration in recommended wilderness areas because of the need to maintain and protect wilderness characteristics. To provide additional analysis support, it is recommended that a white paper be developed that consolidates known information on whitebark pine specific to the HLC NF. This paper may include information such as:

- Conditions of whitebark pine on the HLC NF, why it is in its current condition (exotic disease, fire suppression, and mountain pine beetle) and the ecological consequences;
- Documentation of inventories, research, studies, professional and local knowledge, and publications or other information that supports the importance of restoration for local populations
- HLC NF whitebark pine restoration program goals, objectives, methods, strategies and priorities; and
- Present and future needs, expectations, and uncertainties.

## General Strategies for Pollinators

When planning for vegetation management activities, consider impacts (positive, negative, or neutral) to pollinators when undertaking project design, analysis, and implementation. Apply the latest best available science and policy direction, such as the guidelines in the Pollinator Friendly Best Management Practices for Federal Lands, to provide habitat elements for pollinators. Actions can include the following:

- Design projects to maintain or improve pollinator habitat while still meeting resource objectives;
- Include local pollinator friendly native plant species in project seed mixtures;
- Include creation or maintenance of pollinator habitat in project rationale;
- Implement best management practices when managing roads.

## General Strategies for Invasive Plants

Activities and strategies that may be used to meet the desired conditions, standards, and guidelines for invasive plant species include:

- Survey and inventory of portions of the Forest in a prioritized and systematic manner in order to document the distribution and abundance of target invasive species, identify un-infested areas, and locate and treat any new infestations. Strive to maintain an up-to-date map of known infestations and plant densities.
- Within heavily infested communities, consider shifting emphasis to rehabilitation of a portion of that community to a new desired plant community, rather than attempting to restore to a pre-invasion community.

- Prioritize areas designated for invasive plant management activities according to the criteria outlined within the HLC NF Invasive Plant Management Strategy or the latest guiding document for the Forest. Using guidance provided in the “HLC NF Noxious and Invasive Weed Control” Environmental Assessment and Decision Notice (2001) (“weed control decision notice”).
- Exclude grazing when new invasive plant species infestations (specifically priority 1a and 1b species on the Montana State Noxious Weeds List) are found in allotments until eradication of the infestation is complete. Examples of economically damaging species include Dyer’s woad, rush skeletonweed, yellow starthistle, etc.
- Prioritize weed treatments to follow guidance in the weed control decision notice, using an adaptive strategy to determine where, when, and how to treat weeds/weed-infested sites. This strategy and its implementation include consideration of such factors as:
  - Weed category – potential invader, new invader, widespread invader;
  - Relative invasive nature of the species and its potential to displace native vegetation;
  - Relative ecological importance or rarity of the site that could be damaged by the presence of the weed;
  - Potential for off-site movement of seeds;
  - Determination of control method, which is dependent on the species and site;
  - Site monitoring to determine the need to repeat or alter treatment; and
  - Available funding.
- Use weed management program strategies outlined in the weed control decision notice such as:
  - Use education as well as formal (schools, campgrounds, etc) and informal (such as, brochures, weed identification and prevention brochures) conservation education contacts.
  - Provide continuing education for forest field personnel in weed identification.
  - Pursue and coordinate cooperative multi-ownership weed control efforts, such as sharing resources and information, setting treatment priorities, and applying for and sharing grants.
  - Use prevention efforts, for example, use of weed seed-free hay and straw by users of NFS lands and for reseeding projects.
  - Use native plants to revegetate disturbed areas where appropriate.
  - Use contract provisions to require that off-road equipment be washed before entering and moving between sites on the forest.

## Wildlife

### General strategies

The plan components for terrestrial vegetation represent most of the coarse-filter components that will “support the persistence of native species within the plan area, subject to the extent of FS authority and the inherent capability of the plan area” (FSH 1909.12, Chapter 20, Section 23.1). Therefore, most of the possible management strategies and actions described in the previous section to manage for desired vegetation would provide for most of the habitat needs of wildlife species. Additional possible

management strategies and actions that could be used to achieve wildlife-related desired conditions are described here.

## Goals

In order to move toward the goal described in FW-WL-GO-01 (interagency coordination in project planning), and FW-WL-GDL-15 (coordination of some habitats across NFS boundaries), the following actions could be taken:

- Update, maintain and share maps, databases, and other information regarding wildlife distribution, seasonal ranges, key habitats, etc. among the FS and other agencies responsible for managing wildlife and wildlife habitat on or adjacent to NFS lands.
- Schedule periodic meetings among FS and FWP biologists and, as needed, other staff to review upcoming projects and discuss potential wildlife and habitat issues and needs in proposed or potential project areas
- Work with FWP or other land or wildlife management agencies as appropriate to identify habitat needs on ungulate winter ranges that occur on adjoining FS and state-owned Wildlife Management Areas and jointly develop habitat improvement projects

In order to move toward the goal described in FW-WL-GO-02 (information about living and recreating in wildlife habitats), the following actions could be taken:

- Make information available to forest visitors, permittees, and contractors about the presence of wildlife species and how to avoid negative wildlife-human interactions. This information should emphasize how to work and recreate safely in bear habitat, and how to reduce the risk of bear-human encounters. Methods could include portal signs, kiosks, brochures, websites, social media messages, and collaboration on workshops and other public presentations and events.

## Threatened, Endangered, Proposed and Candidate Wildlife Species

### General strategies

- As required by law, regulation and policy adhere to recovery plans, and carry out consultation under section 7 of the Endangered Species Act for activities that may have an impact on federally listed species.
- Adhere to conservation strategies, or other guidance. Use any additional informal guidance, and work with USFWS to inform planning and implementation of management activities on NFS lands.
- Work with USFWS at a FS Regional level to develop and review consultation processes and guidance for analysis of FS projects.

### Canada lynx habitat and/or critical habitat

Specific plan components regarding management of Canada lynx habitat are detailed in the Northern Rockies Lynx Management Direction, which is incorporated by reference into the Plan (Appendix H). A partial listing of possible management actions and strategies that could occur in lynx habitat and that are consistent with those plan components include, but may not be limited to the following:

- Use regeneration, group selection, or intermediate harvest methods in the stem exclusion structural stage of lynx habitat or in other forested stands that do not currently have a dense understory providing snowshoe hare habitat. Prescriptions may be designed to favor dense regrowth of coniferous tree species that provide food for snowshoe hares.
- Use pre-commercial thinning in some stands that have been recently harvested or burned, in order to promote development of future mature, multi-storied winter snowshoe hare habitat where it is lacking. The location, amount, and type of thinning would be based on analysis of vegetation at the scale of the lynx analysis unit, guided by the best available scientific information, and finalized through appropriate consultation with USFWS.
- Design additional vegetation management projects to specifically move forest composition and structure to achieve desired conditions for Canada lynx habitat, particularly the mature, multi-storied habitat preferred by snowshoe hares in winter.

## Grizzly Bear

Specific plan components regarding management of grizzly bear habitat are detailed in the proposed grizzly bear amendment, which is incorporated by reference into the forest plan. A partial listing of possible management actions and strategies that could occur in grizzly bear habitat and that are consistent with those plan components include, but may not be limited to the following:

- Restrict vegetation management activities in time and space within the PCA and potentially in Zone 1, in order to reduce the potential for disturbance or displacement of grizzly bears, as determined by environmental analysis. This may include, where possible, restrictions on activities occurring during spring in mapped grizzly bear spring habitat.
- Use the best available scientific information, along with interagency recommendations as available, to manage mountain bike use so as to reduce the risk of grizzly bear-human conflicts. Actions may include designing trails where mountain bike use is allowed to facilitate maximum sight distances in areas where bike speed may be high, and eliminating or reducing design features that promote high speeds in areas without good sight distance.
- Work with other agencies and, where appropriate, with private organizations or landowners to provide for habitat connectivity in Zones 1 and 2 through purchases, management agreements, support for easements, and other means.

## Wildlife Species of Conservation Concern

### General strategies

- Consider potential impacts of management actions on SCC when planning, analyzing, and implementing management actions.

### Flammulated owl

- Use vegetation management techniques that promote the growth and retention of large (greater than 15" diameter at breast height), old ponderosa pine and Douglas-fir trees in ponderosa pine habitat types. Use prescribed burning to maintain an open canopy structure and development of large snags in areas adjacent to closed-canopy forest and shrub-dominated openings.

## Other Wildlife Species

### General strategies

- Participate in cooperative efforts (USFWS, Montana Fish, Wildlife, and Parks, and others) to survey or monitor wildlife species and develop habitat improvement projects.

Desired condition FW-WL-DC-03 addresses habitat connectivity and movement between habitat patches and FW-WL-GO-03 addresses identifying linkage areas between NFS parcels. Specific management actions and strategies for maintaining connectivity may include:

- Restrict vegetation management or motorized use in important identified wildlife corridors.
- Work with other agencies and, where appropriate, with private organizations or landowners to purchase, develop cooperative management plans, support easements, or identify other means to maintain or improve habitat connectivity in areas identified through BASI as having value to wildlife for movement among separate parcels of NFS lands.

### Elk and Other Big Game Species

Desired condition FW-FWL-DC-01 addresses the availability and distribution of elk and other big game species for harvest opportunity on NFS lands. A variety of methods may be used to achieve that desired condition, including maintaining or improving elk security. Generally, the guidance in the USDA FS and Montana Department of Fish, Wildlife and Parks Collaborative Overview and Recommendations for Elk Habitat Management on the Custer, Gallatin, Helena, and Lewis and Clark National Forests (2013 or subsequent versions), or other best available science, would be used to manage elk security at an elk herd unit scale. As determined necessary by site specific analysis, specific management actions and strategies for influencing elk distribution and use of NFS lands may include some of the following:

- Restrict the timing and use of motorized routes during the archery and rifle seasons, to minimize potential disturbance and displacement of elk or other big game species in specific areas.
- Retain hiding cover in specific areas in the form of tree or shrub cover or downed woody debris.
- Retain or promote dense vegetation adjacent to motorized routes open during the archery and rifle hunting seasons, to minimize potential disturbance and displacement of elk or other big game species in specific areas where possible without compromising public safety.

### Harlequin duck

- Minimize human disturbance along nesting stream reaches during the breeding season, particularly when broods are young and may be easily separated (June-late July). Encourage recreational boating and floating use on streams other than harlequin duck breeding streams during this time period.
- Construct new trails, bridges and fords, campgrounds, or other facilities away from harlequin duck breeding streams or in areas not known to be used by harlequins.
- Where possible, maintain vegetation (dense tree and/or shrub cover) as a buffer between harlequin duck nesting stream reaches and potential sources of disturbance (such as, trails, campgrounds, dispersed campsites that are routinely used, etc.).
- Carry out surveys of known and potential breeding streams. Coordinate surveys, monitoring, and data with the Montana Natural Heritage Program or other entities that may be involved in harlequin duck monitoring or research.

## Western toad

- Monitor known breeding sites at an appropriate interval to detect changes in use by breeding toads, and to detect site changes due to altered hydrology or disturbance. Coordinate surveys, monitoring, and data with the Montana Natural Heritage Program or other entities that may be involved in western toad monitoring or research.
- At western toad breeding sites that are heavily used by livestock and that show evidence of heavy trampling and/or significant loss of emergent vegetation, consider partial fencing, changes in timing of pasture use, or other measures to reduce impacts caused by livestock.

## Northern bog lemming

- Around fens and other peatlands, maintain recommended buffer distances where vegetation management and ground-disturbance does not occur. Maintain vegetation structure in sub-watersheds that encompass peatlands, such that hydrologic flows are not impacted.
- Monitor peatlands for evidence of trampling and compaction by domestic livestock, and use fencing, pasture rotations, or other techniques to remove or eliminate these impacts from peatlands.

## Bats

- Work cooperatively with other agencies, researchers, and recreational cavers to inventory caves for bats, and to monitor adjacent aquatic and riparian areas for bats (such as using mist nets, acoustic detectors, etc).
- Work cooperatively with other agencies, researchers, and recreational cavers to monitor bats for the presence of white-nose syndrome. Use recommended techniques, such as decontamination procedures, and bat-friendly cave and mine closures as appropriate to minimize the potential spread of white-nose syndrome.

## Recreation Settings, Opportunities, Access, and Scenic Character

Potential management strategies are those that (1) assist in providing a range of recreation opportunities across the Forest, (2) minimize visitor impacts to natural resources and conflicts between user groups, and (3) construct and maintain facilities and trails to address capacity issues and meet visitor needs. Potential strategies include the following:

### Settings – Recreation Opportunity Spectrum

- Develop a recreation niche and vision for the Forest.
- Develop a prioritization process that provides direction for maintenance of existing recreation facilities, construction of new facilities, and reconstruction of and/or additions to existing facilities. The prioritization process emphasizes the Forest's recreation niche and is in alignment with regional and national direction.
- Integrate recreation opportunity spectrum settings into project level designs and management decisions.

### Opportunities – Developed Recreation Sites

- Address developed campgrounds that need improvements, by prioritizing improvements that address accessibility, health and safety, types of use, size of recreational vehicles, and reduction of bear-human interactions.

- Consider the protection/maintenance of historic character, while meeting public needs, when identifying cabins to place on the reservation system.

## Opportunities – Dispersed Recreation

- Address dispersed campsites with erosion and/or sanitation issues. Prioritizing rehabilitation needs by focusing on dispersed campsites located near river or stream corridors.
- Develop closure orders for dispersed recreation areas where visitor safety is at risk or changes need to be made to avoid or rehabilitate environmental impacts.
- Inform and educate users about Leave No Trace techniques for responsible, outdoor activities with minimal impacts on NFS lands.

## Opportunities – Recreation Special Uses

- Complete a needs assessment to determine new outfitter, guide, and livery services on the Forest, outside of designated wilderness areas.

## Scenic Character

- Integrate scenic integrity objectives into project level designs and management decisions.

## Designated Areas

### Inventoried roadless areas

The Roadless Area Conservation Rule (USDA, 2001) establishes prohibitions on road construction, road reconstruction, and timber harvesting in inventoried roadless areas on National Forest System lands, with the intent to provide lasting protection for these areas in the context of multiple-use management. The desired conditions (FW-IRA-DC) are designed to promote the roadless area characteristics described 36 CFR Part 294.11, including:

- High quality or undisturbed soil, water and air;
- Sources of public drinking water;
- Diversity of plant and animal communities;
- Habitat for threatened, endangered, proposed, candidate, and sensitive species and for those species dependent on large, undisturbed areas of land;
- Primitive, semi-primitive nonmotorized, and semi-primitive motorized classes of dispersed recreation;
- Reference landscapes;
- Natural appearing landscapes with high scenic quality;
- Traditional cultural properties and sacred sites; and
- Other locally identified unique characteristics

To ensure that the desired conditions can be met, FW-IRA-GDL-01 states that management activities should be consistent with the scenic integrity objective of high. FW-IRA-SUIT-01 specifies that these areas are not suitable for timber production.

The Forest should refer to 36 CFR Part 294 (USDA, 2001) as well as the latest National and Regional direction, including the need for review by the Regional Forester or Chief of the FS, when contemplating vegetation management activities in inventoried roadless areas. Planned and unplanned fire ignitions are not prohibited by the Roadless Area Conservation Rule. Timber cutting is prohibited except for the purposes as stated in 36 CFR Part 294.13 (b):

- (1) The cutting, sale, or removal of generally small diameter timber is needed for one of the following purposes and will maintain or improve one or more of the roadless area characteristics as defined in 294.11: (i) To improve threatened, endangered, proposed, or sensitive species habitat; or (ii) To maintain or restore the characteristics of ecosystem composition and structure, such as to reduce the risk of uncharacteristic wildfire effects, within the range of variability that would be expected to occur under natural disturbance regimes of the current climatic period;*
- (2) The cutting, sale, or removal of timber is incidental to the implementation of a management activity not otherwise prohibited by this subpart;*
- (3) The cutting, sale, or removal of timber is needed and appropriate for personal or administrative use, as provided for in 36 CFR part 223; or*
- (4) Roadless characteristics have been substantially altered in a portion of an inventoried roadless area due to the construction of a classified road and subsequent timber harvest. Both the road construction and subsequent timber harvest must have occurred after the area was designated an inventoried roadless area and prior to January 12, 2001. Timber may be cut, sold, or removed only in the substantially altered portion of the inventoried roadless area.*

The following considerations may apply to vegetation management that is designed to meet one or both of the emphasized purposes in (36 CFR 294.13 (b)(1)(i) or (ii):

- Determine the natural range of variation for vegetation and habitat conditions at the scale of the inventoried roadless area or project area, and place it into the context of the broader landscape, geographic area, and forestwide scales.
- Consider the contribution of natural processes to achieving wildlife habitat, connectivity, and other vegetation or habitat desired characteristics within the inventoried roadless area.
- Consider that inventoried roadless areas may provide valuable vegetation components such as snags, old growth, and habitat connectivity, especially if surrounded by a more heavily managed or fragmented landscape.
- Emphasize tools such as prescribed fire and hand treatments (such as the cutting of small trees) where feasible to meet project objectives. Utilize mechanical (noncommercial or commercial) tree removal when it is the most effective and efficient method to meet project objectives, and can be conducted to preserve the desired roadless area characteristics.
- Each project should define the size of tree that constitutes “small diameter timber” and explain the rationale for that definition in the context of the landscape and associated vegetation communities. The definition of the seedling/sapling and small tree size classes in the R1 Vegetation Classification System (less than 10” diameter) is used for terrestrial vegetation plan components and can be a general guide. However, the definition of small timber for the purposes of complying with the Roadless Area Conservation Rule may vary, either smaller or larger, depending on the landscape and ecosystem context. For example, in an area dominated by large Douglas-fir growing on productive sites, to achieve desired conditions such as restoring the largest size classes and low stand densities, the smaller trees in a given area or stand could be



over 10” in diameter. Conversely, in areas where seedlings and saplings have encroached into meadows or in stands of naturally smaller diameters, (such as lodgepole pine) small trees may be appropriately limited to smaller diameters.

## Wilderness

- Revise the existing wilderness management plan for the Bob Marshall Wilderness complex.
- Develop a wilderness management plan for the Gates of the Mountains Wilderness.
- Implement the national wilderness stewardship performance measures and wilderness character monitoring.

## Continental Divide National Scenic Trail

- Allow hauling or skidding along the Continental Divide National Scenic Trail, where it is currently located on a road that has not yet been re-located, or to address hazard tree removal.
- Manage unplanned fires in the foreground of the Continental Divide National Scenic Trail using minimum impact tactics where they can be safely applied, as determined by the Incident Commander in consultation with the Agency Administrator. Agency Administrators should ensure Incident Commanders are aware of the status of the trail and the need to maintain its scenic integrity.
- Approve the use of heavy equipment for line construction on fires within the trail corridor only when other line construction techniques cannot be safely applied or the short and long-term risk to firefighter safety, public safety, and values at risk show its’ use to be the best course of action.
- Clearly identify fire suppression rehabilitation and long term recovery of the Continental Divide National Scenic Trail corridor as high priorities for Incident Commanders, Burn Area Emergency Rehabilitation Team Leaders and post Burn Area Emergency Rehabilitation post fire rehabilitation efforts.

## Research Natural Areas

- Identify, prioritize, and designate potential additions to the research natural area network through the process that has been cooperatively developed by the FS and the Rocky Mountain Research Station.

## Special Areas

- Identify, prioritize, and designate potential Special Areas through the designation process that has been set up by the Forest Service Northern Regional Office.
- Develop a recreation management plan for recreation special areas.

## Lewis and Clark National Historic Trail Interpretive Center

- Develop a management plan for the Lewis and Clark National Historic Trail Interpretive Center that provides guidance for the center and outlines both short and long term plans for interpretive programming, educational programming, exhibitry, and maintenance needs.
- Ensure that interpretive and educational programming and exhibits at the Lewis and Clark National Historic Trail Interpretive Center accommodate current and anticipated changes to visitor use and changes in interpretation and education methods for message delivery.

## Cultural and Historic Resources and Uses

### Cultural Resources

- Develop and implement a program and schedule to complete an inventory of cultural resources on all NFS lands within the plan area which are likely to contain cultural resources in accordance with the National Historic Preservation Act, Archaeological Resource Protection Act, and Executive Order 11593.
- Develop, and annually review, a forestwide direction for the protection of cultural resources that are vulnerable to catastrophic fires or other natural or human-caused damage.
- Develop landscape-watershed plans that identify all known cultural resources within the area and identify their management potential (FSM 2363.3). The landscape-watershed plan will highlight the cultural resource data that contribute to the understanding of historic land use and vegetation patterns within the study area and to increase the scientific understanding of the evolution and condition of ecosystems, as well as benefit land management practices.
- Prepare historic property plans for highly significant historic properties with an emphasis on priority heritage assets. These plan documents will follow the guidance in FSM 2362.4.
- Annually update a forest heritage program plan that is tiered to the FS Heritage Program Managed to Standard measures. The Heritage Program Managed to Standard measures reflects the Agency's guidance for Heritage Program Management as outlined in Forest Service Manual 2360 and responsibilities in fulfillment of Section 110 of the National Historic Preservation Act. The forest heritage program plan includes a synthesis of known cultural resources, a synthesis of projected cultural resources (i.e. predictive modeling and site identification strategies), protocols for responding to unanticipated discovery of cultural resources or human remains as required by the Native American Graves Protection and Repatriation Act, protocols for responding to damage to or theft of cultural resources, and direction for the protection of cultural resources vulnerable to catastrophic fires or other natural or human-caused damaged.

### Areas of Tribal Importance

- Manage traditional cultural areas through the development of management plans, in consultation with Native Americans.

## Lands Status and Ownership, Land Uses, and Access Patterns

- Identify all lands suitable for utility right-of-way corridors within the HLC NF's plan area.
- Identify existing locations on the ground for all designated communication sites.

### Infrastructure

- Improve and protect water quality by implementing "National Best Management Practices for Water Quality Management on National Forest System Lands", "Montana Best Management Practices" and "Soil and Water Conservation Practices."

## Benefits to People: Multiple Uses and Ecosystem Services

### Livestock Grazing

The general approach to grazing management implements resource management practices intended to maintain the health of occupied livestock grazing allotments and rangelands. Strategies for accomplishing this approach may include the following:

- Assess and update allotment management plans to ensure that sustainable stocking levels, forage utilization standards, mitigation measures, and appropriate grazing systems are used and that lands are still suitable for livestock grazing and other agricultural activities.
- Eliminate grazing allotments or pastures as they become vacant if there is no demand for grazing by potential permittees or if desired vegetation and aquatic conditions cannot be met.
- Improve and protect water quality by implementing “National Best Management Practices for Water Quality Management on National Forest System Lands”, “Montana Best Management Practices” and “Soil and Water Conservation Practices.”

### Timber, Other Forest Products, and Wood for Fuel

#### General strategies

- In lands suitable for timber production, vegetation management activities are expected to be readily visible and play a dominant role in affecting vegetation conditions. This includes regeneration and intermediate harvest treatments, tree planting, non-commercial thinning, fuel reduction activities, cone collection, and prescribed fire.
- In lands unsuitable for timber production, vegetation management activities are less evident but harvest is used to achieve objectives other than timber production, and contributes towards vegetation desired conditions.
- The full range of applicable stewardship, contracting, and permitting authorities are considered to offer timber, other forest products, and wood for fuel, to meet the needs of the public and contribute to local economies.

#### Strategies for specific plan components

##### *Timber volume offerings (FW-TIM-OBJ-01 and FW-TIM-OBJ-02)*

Two objectives describe the timber volume offerings expected to occur in the revised forest plan. Treatments described in FW-VEGT-OBJ-01 can be used to meet these objectives. Harvest treatments may be designed to meet timber objectives as well as other resource objectives, such as forest restoration, fuel reduction, and wildlife habitat improvements. The projected timber sale quantity (PTSQ) includes only the volume that meets merchantable timber utilization standards. The projected wood sale quantity (PWSQ) includes merchantable timber as well as all other wood products. The possible actions and strategies to meet these objectives include:

- Offer timber sales with a variety of sizes and complexities.
- Explore opportunities to improve biomass utilization.
- Provide opportunities for commercial firewood sales, as well as other forest products such as post and poles.

- Integrate all resource objectives and utilize timber harvest as a tool where appropriate to achieve Forest Plan desired conditions.
- Utilize special authorities such as stewardship contracting as appropriate to achieve timber volume offerings and other resource objectives.

Utilization standards are specifications for merchantable forest products offered in a timber sale. They are regionally determined, but may vary by project due to current market conditions and site-specific considerations, with Regional approval (FSH 2409.12-2013-1). Generally minimum standards for sawtimber are 7.0" diameter at breast height, 8' in length, and 5.6" diameter inside bark at the small end. A diameter at breast height of 6" and diameter inside bark of 4.6" may be used without Regional approval, and are generally used for lodgepole pine. Post and pole material usually consists of material 2 to 6" in diameter, with no minimum height.

#### *Reforestation (FW-TIM-STD-02)*

This standard, as required by the National Forest Management Act and the planning directives, ensures that forested sites where regeneration harvests occur are reforested in a timely manner to appropriate stocking levels. This applies regardless of whether the harvested area is suitable for timber production or not. The level of appropriate stocking would depend on site conditions and management objectives, but should not be lower than the definition of a forested site (ten percent occupied by trees). Sites can be reforested to lower levels than the original stand, if consistent with the other desired conditions, standards, guidelines, and project objectives applicable to the site. Reforestation prescriptions are at a minimum reviewed and approved by a certified silviculturist.

Areas that are being managed as nonforested plant communities are not included in this standard, even though it is possible that timber harvest could be used as a tool in these areas, for example to remove encroaching conifers.

#### *Maximum opening size for timber harvest (FW-TIM-STD-08)*

The National Forest Management Act (NFMA) is the foundation for this standard. This act limits clearcutting and other even-aged harvest to 40 acres except in situations where: "(iv) there are established according to geographic areas, forest types, or other suitable classifications the maximum size limits for areas to be cut in one harvest operation, including provision to exceed the established limits after appropriate public notice and review by the responsible FS officer one level above the FS officer who normally would approve the harvest proposal." ("National forest management act of 1976," 1976). The 2012 planning rule provides for development of components that exceed opening size limits, where "larger harvest openings are necessary to help achieve desired ecological conditions" (36 CFR 219.11(d)(4)(i)).

FW-TIM-STD-08 provides new maximum opening sizes consistent under these provisions and includes the particular conditions under which the larger size is permitted. Openings up to the maximum size in this standard do not need public review and Regional Forester approval. Exceptions to create openings greater than these sizes may occur in cases of natural catastrophic conditions, such as fire, insect and disease attack, or windstorm. Exceptions may also be granted as per handbook guidance, with Regional Forester approval and a 60-day public comment period.

- Warm dry and cold broad potential vegetation types: The natural range of variation indicated that the natural level of openings was not substantially greater than the 40 acre NFMA maximum; therefore, no adjustment was included.

- Cool moist broad potential vegetation type: The natural range of variation analysis supports an increase in the maximum opening size consistent with the mean patch size in the natural range of variation, 125 acres, which is also consistent with the natural fire regime and expected future disturbances. This larger patch size is needed to meet desired ecological conditions for the plan area, such as those associated with forest patterns resilience in the short and long term.

Potential strategies to apply during project-level analysis, at both the landscape and stand level, to maintain desired conditions for forest patterns and patch sizes include considering the creation of appropriate opening sizes across landscapes. Larger openings have less edge per unit area, which is desirable for wildlife species that avoid edge habitats or experience greater mortality near edge habitats. Management strategies to create larger patch sizes across the landscape may include:

- Retain additional forest structural components in larger regeneration harvest areas to provide greater short and long-term structural diversity and provide a more visually pleasing landscape. This strategy could include leaving patches of uncut forest or individual/small groups of live trees distributed throughout the harvest openings and also may include retaining more snags.
- Consider scenery in project design. To lessen the visual impact, larger harvest openings can have irregular shapes that are blended to the natural terrain. Retention of individual or patches of trees within the opening would also create a more visually pleasing appearance. Consideration for the natural patterns that might be produced by a mixed severity fire may be incorporated into the shape and size and design of openings. There may be an expectation of short-term visual impacts to achieve long-term benefits.
- Locate new harvest openings adjacent to existing patches of sapling trees. This initially creates a larger patch of early successional forest, where trees are of the same cohort (for example, ages are within 20 years of each other), while lessening potential concerns related to larger openings.
- Consider the location of larger units. When determining where a larger opening might be created, consider factors such as: wildlife security, visibility from areas with high level of public use, desired conditions related to potential fire behavior and fuel loadings, and watershed conditions related to water yields.
- Consider desired conditions for development of future late successional and old growth forests. Larger patches of young, seedling/sapling forests can eventually develop into larger patches of old growth or late successional forest over time, which is a desired long term condition.

### *Special forest and botanical products (FW-OFP-GDL-02)*

This guideline specifies that special forest and botanical products should be collected in a sustainable manner when permits are issued. The intent of the guideline is to ensure that the collection of such material does not adversely impact resources or preclude future opportunities. The methods used to meet this guideline would vary depending on the specific product and resource conditions. For example, when living plants or plant parts are being gathered, do not remove or damage an entire local population.

## Connecting People with Nature and History

The following management approaches are recommended to support plan components for connecting people with nature and history:

- Create a forestwide public information and communication plan that reviews and develops public communication measures to ensure communication methods and forums are reaching the appropriate audiences.

- Develop a forestwide education plan that is reviewed and updated to ensure relevancy with area schools and is in sync with national policies for conservation education and stewardship messages.
- Develop a forestwide interpretation plan to coordinate interpretive messages across the Forest and to provide an inventory of interpretive structures and facilities. The Plan should include the programming being offered at the Lewis and Clark National Historic Trail Interpretive Center.
- Ensure that visitor information is readily available for pre-visit information gathering in a variety of forums and kept up to date so that the public may be informed and educated through modern technology about current FS related policies, activities, services, and issues.
- Ensure that the Forest has an organized and consistent approach to working with all youth and young adults and aims to connect with underserved populations.
- Continue to offer programs already in place, such as the Youth Forest Monitoring Program (YFMP), that have established strong ties to the community.
- Work with partners to identify and widely-publicize grant programs for communities and local schools that connect youth with outdoor recreation. Explore avenues to match the interest and programming capacity of local partners and the unit's personnel with the resources available in local and national grant programs.
- Work with communities and partners to develop strategies for getting youth outside in nature. Coordinate efforts to ensure compliance with agency policies (e.g., outfitter/guide permits).
- Work with permittees and other partners to identify and remove existing obstacles for diverse and inclusive participation in recreation opportunities on the forest.
- Forge new partnerships with State, local, tribal, private, and non-profit partners to expand access to underserved populations, particularly those in the immediate vicinity of the forest.
- Explore opportunities to establish programs that preserve and protect the unit's natural and cultural resources, offer training and employment opportunities, develop future stewards of NFS lands, and leverage the unit's capacity to achieve priority work.

## Carbon

The desired condition acknowledges the role of forest management in the carbon cycle. All plan components contribute to this by providing for the persistence of native vegetation. Maintaining landscapes with native vegetation– not converting them to other uses such as agriculture or urban development – maintain their ability to cycle carbon. Carbon sequestration will be increasingly difficult if wildfires, insect outbreaks, and diseases increase as expected (Halofsky et al., in press). Hazardous fuel treatments and treatments that increase forest resilience to disturbance can help limit disturbances that rapidly oxidize carbon and emit it to the atmosphere (ibid).

## Energy and Minerals

- Improve and protect water quality by implementing “National Best Management Practices for Water Quality Management on National Forest System Lands”, “Montana Best Management Practices” and “Soil and Water Conservation Practices.”
- Develop compliance inspections for mineral operations to be commensurate with the complexity of the mineral activity.
- Provide guidance to claimants/operators for planning reclamation and minimizing environmental impacts.

## Literature

- Bollenbacher, B., Bush, R., Hahn, B., & Lundberg, R. (2008). *Estimates of snag densities for eastside forests in the northern region* (08-07 v2.0). Retrieved from Missoula, MT:
- Brown, J. K., Reinhardt, E. D., & Kramer, K. A. (2003). *Coarse woody debris: Managing benefits and fire hazard in the recovering forest* (General Technical Report RMRS-GTR-105). Retrieved from Ogden, UT: [https://www.fs.fed.us/rm/pubs/rmrs\\_gtr105.pdf](https://www.fs.fed.us/rm/pubs/rmrs_gtr105.pdf)
- Graham, R. T., Harvey, A. E., Jurgensen, M. F., Jain, T. B., Tonn, J. R., & Pagedumroese, D. S. (1994). *Managing coarse woody debris in forests of the rocky mountains*. (0146-3551).
- Green, P., Joy, J., Sirucek, D., Hann, W., Zack, A., & Naumann, B. (1992). *Old-growth forest types of the northern region (errata corrected 02/05,12/07,10/08,12/11)* (R-1 SES 4/92). Retrieved from Missoula, MT:
- Halofsky, J. E., Peterson, D. L., Dante-Wood, S. K., Hoang, L., Ho, J. J., & Joyce, L. A., editors (Eds.). (in press). *Climate change vulnerability and adaptation in the northern rocky mountains* (1 ed. Vol. RMRS-GTR-xxx). Fort Collins, CO: USDA Forest Service, Rocky Mountain Research Station.
- Keane, R. E., Tomback, D. F., aubrey, C. A., Bower, A. D., Campbell, E. M., Cripps, C. L., . . . Smith, C. M. (2012). *A range-wide restoration strategy for whitebark pine (pinus albicaulis)*. Retrieved from Fort Collins, CO: <https://www.treearch.fs.fed.us/pubs/40884>
- National forest management act of 1976, 16 C.F.R. § 1600 (1976).
- USDA. (2001). *36 cfr part 294 - special areas, roadless area conservation rule*. Washington, DC: USDA Forest Service Retrieved from [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5050459.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5050459.pdf).
- USDA. (2012). *36 cfr part 219, planning*. Washington, DC: USDA Forest Service.
- USDA. (2015). *Forest service handbook (fsh) 1909.12, land management planning handbook*. Retrieved from Washington, DC: <https://www.fs.fed.us/im/directives/>

Page intentionally left blank



# Appendix D. Vegetation Classifications and Descriptions

## Table of Contents

<b>Introduction .....</b>	<b>1</b>
<b>Data Sources .....</b>	<b>1</b>
Forest Inventory and Analysis.....	1
Region 1 Vegetation Map .....	1
Analytical Vegetation Models .....	2
<b>Broad potential vegetation types.....</b>	<b>2</b>
<b>Cover Type .....</b>	<b>5</b>
<b>Individual Tree Species Presence .....</b>	<b>6</b>
<b>Size Class.....</b>	<b>6</b>
<b>Large and Very Large Trees.....</b>	<b>7</b>
Large and Very Large Live Trees per Acre .....	7
Large and Very Large Live Tree Concentrations.....	7
<b>Density Class and Vertical Structure .....</b>	<b>8</b>
<b>Snags .....</b>	<b>9</b>
<b>Old Growth.....</b>	<b>10</b>
<b>Coarse woody debris .....</b>	<b>11</b>
<b>Early successional forest patches .....</b>	<b>11</b>
<b>Literature .....</b>	<b>11</b>

## List of Tables

<b>Table 1. Potential vegetation type classification for habitat types found on the HLC NF .....</b>	<b>2</b>
<b>Table 2. Percent of broad potential vegetation types on NFS lands on the HLC NF<sup>1</sup> .....</b>	<b>4</b>
<b>Table 3. Cover type classification for dominance types found on the HLC NF .....</b>	<b>5</b>
<b>Table 4. Forest size classes .....</b>	<b>6</b>
<b>Table 5. Large and very large tree concentration definitions by broad potential vegetation group .....</b>	<b>8</b>
<b>Table 6. Forest density classes and associated vertical structures.....</b>	<b>9</b>
<b>Table 7. Eastern Montana zone old growth type minimum criteria (Green et al 1992) .....</b>	<b>10</b>

Page intentionally left blank.

## Introduction

This appendix describes in detail the vegetation classifications upon which many plan components are built, forming the basis for many forest plan components related to vegetation and wildlife habitat.

## Data Sources

The vegetation classifications used for forest plan revision, as described in this appendix, are designed for consistent use across the best available data for the HLC NF, based on the R1 Classification System (Barber, Bush, & Berglund, 2011). This approach ensures that consistent and reliable information is available for analysis and monitoring through the life of the revised forest plan.

## Forest Inventory and Analysis

The sources of data for quantifying existing vegetation are Forest Inventory and Analysis (FIA) plots and FIA intensified grid plots. FIA is a national inventory of forest ecosystem data derived from field sample locations distributed systematically across the U.S., regardless of ownership or management emphasis (Bush, Berglund, Leach, Lundberg, & Zeiler, 2006). Data collection standards are strictly controlled and the sample design and collection methods are scientifically designed and repeatable. FIA provides a statistically-sound representative sample to provide unbiased estimates at broad- and mid-levels. Plots have been permanently established and are re-measured on a regular basis (currently every 10 years).

The National FIA grid covers all national forest system lands on the HLC NF. The FIA grid has been intensified by four times (4x) on the HLC NF, using protocols compatible with the National FIA grid. The sample at the time of plan revision is not complete for the Rocky Mountain Range GA, nor does it cover the portion of the Elkhorns GA on the Beaverhead-Deerlodge National Forest. On GAs where the 4x intensification is completed, these plots are added to the base FIA to create an enhanced analysis dataset.

FIA and FIA intensified grid data is the primary data source used for monitoring and evaluation of vegetation conditions over time. FIA and FIA intensified grid data are summarized in the Region 1 Summary Database, which is an access database that includes statistical reporting functions and derived attributes or classifications consistent with the R1 Classification System (Barber, Berglund, & Bush, 2009; Bush et al., 2006).

## Region 1 Vegetation Map

The Region 1 existing vegetation mapping system (R1 VMap) (Barber et al., 2011) is the source for classification and spatial mapping of existing vegetation. R1 VMap is derived from National and Regional remote sensing protocols, using a combination of satellite imagery and airborne acquired imagery, with refinement and verification through field sampling. The product is assessed for accuracy, with a known and quantifiable level of uncertainty. Though the product is inherently less accurate and detailed than plot sampling, it allows for an analysis of the spatial distribution of vegetation. It was designed to allow consistent applications of vegetation classification and map products across all land ownerships (Barber et al., 2009; Barber et al., 2011; Berglund, Bush, Barber, & Manning, 2009).

The VMap version used was produced in 2014 based on 2011 imagery and represents our best current spatial estimate for vegetation components including lifeform, dominance type, size class, and density class. R1 VMap data is used as a basis for the spatial representation and description of existing vegetation and for the spatial modeling of vegetation conditions over time.

## Analytical Vegetation Models

Two analytical models were used in the development of the revised forest plan:

- The Spectrum model was used to project alternative forest management scenarios, schedule vegetation treatments and provide outcomes, based upon a variety of input parameters, such as management objectives and budget limitations. Spectrum also is used to project timber harvest acres and volumes over time under different management scenarios.
- The SIMPPLLE model (SIMulating Patterns and Processes at Landscape scaLEs) was used to simulate fire, insect and disease disturbances over time, and the interaction of these disturbances with vegetative succession and treatments. SIMPPLLE was used to conduct the natural range of variation analysis which formed the basis for the development of vegetation desired conditions. The SIMPPLLE model provides for spatial analysis of future management activities as scheduled through the Spectrum model.

## Broad potential vegetation types

Lands across the HLC NF are grouped into broad potential vegetation types, based on climatic and site conditions. Potential vegetation types serve as a basis for description of ecological conditions across the forest. These groups are useful in understanding the various ecosystems, their potential productivity, natural biodiversity, and processes. Potential vegetation types are essentially assemblages of habitat types, which are aggregations of ecological sites of like biophysical environments (such as climate, aspect, and soil characteristics) that produce plant communities of similar composition, structure and function (Mueggler & Stewart, 1980; Pfister, Kovalchik, Amo, & Presby, 1977). The vegetation communities that would develop over time given no major disturbances (the climax plant community) would be similar within a habitat type or potential vegetation type. It is assumed that potential vegetation types generally remain constant. A consistent hierarchy of broad potential vegetation type developed for the Northern Region (Milburn, Bollenbacher, Manning, & Bush, 2015) is used, as shown in Table 1.

**Table 1. Potential vegetation type classification for habitat types found on the HLC NF**

Region 1 Broad Potential Vegetation Type	Region 1 Habitat Type Groups	Region 1 MT Potential Vegetation Type	Habitat Type Code
Warm Dry Forest	Hot Dry	pifl	000, 040, 050, 051, 052, 070, 0903, 0913, 0923, 0933, 0943, 0953
	Warm Dry	pipo	100, 110, 130, 140, 141, 142, 160, 161, 162
			1034, 1044, 1000325, 1000335, 1000345, 1000355, 1000375, 1054, 1064, 150
		psme1	200, 210, 220, 230, 2054, 3904
		psme2	311, 380
		psme3	321
		pipo	180, 181, 182
	Mod Warm Dry	pipo	170, 171, 172, 190
		picea	430
		psme2	2404, 250, 260, 261, 262, 263, 280, 281, 282, 283, 292, 310, 312, 313
		psme3	360, 320, 322, 323, 324, 330, 350, 370, 340
	Mod Warm Mod Dry	psme2	290, 291, 293

Region 1 Broad Potential Vegetation Type	Region 1 Habitat Type Groups	Region 1 MT Potential Vegetation Type	Habitat Type Code
Cool Moist Forest	Cool Moist	abla2	600, 620, 621, 622, 623, 624, 625, 660, 661, 662670, 671, 673, 740
		picea	400, 420, 421, 422, 460, 461, 462, 470, 0046, 4724, 4754
	Cool Wet	abla1	610, 630, 635, 636, 637, 650, 651, 652, 653, 654, 655, 631, 632
		picea	410, 440, 480
	Cool Mod Dry to Moist	abla2	663
		abla3	640, 691, 693, 700, 720, 750, 770, 780, 790, 791, 792, 690, 607, 745
		picea	450
		pico	900, 910, 920, 930, 950, 9604
Cold Forest	Cold	abla3	672, 692, 694, 731, 732, 733,
		abla4	674, 730, 800, 810, 820, 830, 831, 832
		pico	925, 940
	Timberline	pial	850, 870, 890
Xeric Grassland	Bluebunch Wheatgrass	drygrass	Ref 199: 015, 016, 017, 020, 065; Ref 115: 200, 500, 800; Ref 103: 47130, 47131, 47132, 47140, 47141, 47142, 47143, 47144, 47145, 47146; Ref 114: 100005, 100006, 10010, 100021, 100054, 100055
Mesic Grassland	Western Wheatgrass	agrsmi	Ref 114: 100001. Ref 115: 100
	Fescue	fesida	Ref 199: 18, 39; Ref 615: GB5917, GB5922; Ref 103: 47003, 47004, 47120, 47121, 47122, 47123, 47124, 47125, 47126, 47127; Ref 114: 100023
		fessca	Ref 199: 19; Ref 103: 47110, 47111, 47112, 47113, 47114, 47115
Mesic Shrubland	Mesic Shrubland	potfru	Ref 199: 34; Ref 103: 46620, 46621, 46622, 46623
		mesic shrub	Ref 199: 030; Ref 110: 030, 031; Ref 112: 156, 157, 158, 159, 160, 161 Ref 115: 2000, 2100; Ref 114: 100052, 100056; Ref 615: SM19
Xeric Shrubland/ Woodland	Low Shrubland	sage1	Ref 199: 031; Ref 103: 46600, 46601, 46602, 46603
	Mountain Shrubland	sage4	Ref 199: 033; Ref 103: 46611, 46612, 46613
	Xeric Sagebrush	sage3	Ref 199: 032
		sage2	Ref 115: 1100, 1200; Ref 103: 46610, 46614; Ref 114: 100014, 100015
	Xeric Shrubland	dry shrub	Ref 103: 46201, 46301, 46630, 46632, 46633; Ref 114: 100028; Ref 115: 1400; Ref 199: 035; Ref 615: SD49
		rhus	Ref 199: 036, 037; Ref 103: 46640, 46641, 46642; Ref 114: 100046, 100047, 10048
		sage5	Ref 114: 100013; Ref 115: 1000
	Salt Desert Shrub	saltshrub	Ref 199: 038; Ref 115: 1300; Ref 103: 46650, 46651, 46652; Ref 114: 100049, 100050.
	Juniper Woodland	juniper	Ref 102: 151, 152; Ref 114: 100029, 100030; Ref 199: 50
Riparian/ Wetland	Aspen Woodland	poptre	Ref 102: 351, 356; Ref 112: 117, 118, 119, 120, 121; Ref 114: 100040; Ref 199: 078
	Riparian Shrub	ripshrub	Ref 112: 030, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 150, 151, 152, 153, 154, 155, SW1117, SW5112, SW5113; Ref 199: 071, 072, 073, 074

Region 1 Broad Potential Vegetation Type	Region 1 Habitat Type Groups	Region 1 MT Potential Vegetation Type	Habitat Type Code
	Wetland Graminoid	ripgrass	Ref 615: MW19; Ref 199: 021, 061, 070; Ref 112: 200, 201, 202, 203, 204, 205, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, MD3111, MM1912, MM2912, MM2914, MM2915, MM2917, MM2920, MS31111, MW3912, MW4911, MW4912. Ref 103: 47100, 47101
	Riparian Deciduous Tree	ripdecid	Ref 102: 301; Ref 110: 20; Ref 112: 103, 104, 105, 106, 110, 111, 112, 113, 114, 115, 116, 122, 123, 124, 125, 130; Ref 114: 100024; Ref 199: 60, 71, 72, 73, 74, 79
Alpine	Alpine Herbaceous	alpine	Ref 113: 001,002, 003,004,005, 006, 009, 010, 012, 013, 015, 016, 018, 019, 022, 023, 024, 025, 026, 027, 028, 029; Ref 199: 080, 081, 084
	Alpine Shrub		Ref 113: 007, 008, 011, 014, 017, 020, 021; Ref 199: 087
Sparse	Sparse	Sparse	Ref 101: 010

Table 2 provides the acres and proportion of each Region 1 broad potential vegetation type that occurs in the GAs on the HLC NF.

**Table 2. Percent of broad potential vegetation types on NFS lands on the HLC NF<sup>1</sup>**

Broad Potential Vegetation Type	Total HLC NF	Big Belts	Castles	Crazies	Divide	Elkhorns HLC/ All <sup>3</sup>	High- woods	Little Belts	Rocky Mtn	Snowies	Upper Black- foot
Warm Dry Forest	41%	72%	54%	45%	52%	35%/49%	68%	46%	17%	45%	37%
Cool Moist Forest	31%	12%	17%	26%	27%	12%/2%	3%	32%	48%	44%	39%
Cold Forest	24%	11%	20%	26%	17%	32%/39%	3%	18%	32%	5%	23%
Xeric Grassland <sup>2</sup>	0	<1%	0%	0%	0%	0%/0%	0%	<1%	0%	0%	0%
Mesic Grassland <sup>2</sup>	<1%	3%	2%	0%	2%	16%/0%	3%	1%	<1%	0%	<1%
Mesic Shrubland <sup>2</sup>	<1%	0%	0%	0%	0%	0%/0%	6%	<1%	<1%	2%	0%
Xeric Shrub/Wood -land <sup>2</sup>	<1%	<1%	6%	2%	0%	4%/4%	18%	<1%	0%	0%	0%
Riparian/ Wetland <sup>2</sup>	<1%	0%	0%	0%	0%	0%/0%	0%	<1%	0%	0%	0%
Alpine <sup>2</sup>	0%	0%	0%	0%	0%	0%/0%	0%	0%	0%	0%	0%
Sparse	2%	<1%	2%	0%	1%	2%/6%	0%	1%	2%	4%	3%

<sup>1</sup> Data is from the R1 Summary Database, based Forest Inventory and Analysis and Forest Inventory and Analysis Intensified Grid plot data. Base Forest Inventory and Analysis (“Hybrid 2011” dataset) is used forestwide and for the Rocky Mountain Range GA. Intensified grid data “F12F15 Partial IntGrid 4x Hybrid 2016 Combined”) is used for all other GAs because they have a completed intensified inventory. Values are rounded to the nearest whole number. Plots that have been impacted by fire and harvest are included in estimates, because these events would not change the PVT.

<sup>2</sup> Rare types or those distributed in small patches are not well captured by grid data, but are anecdotally known to occur.

<sup>3</sup> The HLC NF portion of the Elkhorns is represented by intensified grid data. The entire Elkhorns (all) is represented by base FIA data (“Hybrid 2011”) and includes the portion of the GA on the Beaverhead-Deerlodge NF.

## Cover Type

Cover types are assemblages of existing vegetation that occur at any one point in time. They are groupings of dominance types that simplify analysis for the broad scale. Dominance types describe the most common plant species present, giving an indication of the relative abundance of species. Dominance type and therefore cover type describe assemblages of plant species, rather than an individual species, although they are named after the most dominant species present. Information on how dominance types are determined is found in Barber and others (2011).

The classification of cover type includes both forested and nonforested communities. There are eight coniferous cover types on the HLC NF and four non-forested cover types as shown in Table 3, based on the work of Milburn and others (2015). Currently non-forested cover types are not classified in the R1 Summary Database; therefore, for the quantitative analysis all nonforested cover types are lumped together. The western larch mixed conifer cover type is only present in the Upper Blackfoot GA (in negligible amounts) and is therefore excluded from forestwide estimates.

**Table 3. Cover type classification for dominance types found on the HLC NF**

Cover Type	Description and Species Associations	Region1 Vegetation Map: DomMid40
Ponderosa Pine	This cover type includes sites dominated by ponderosa pine, juniper, and/or limber pine. A minor component of Douglas-fir may be present. Ponderosa pine is found on a narrow elevation band between non-forested types and Douglas-fir forests. This cover type usually grows on the warm dry broad potential vegetation type.	MX-PIFL2, MX-PIPO, or MX-JUNIP1
Dry Douglas-fir	This cover type is found on dry sites dominated by Douglas-fir, with potential components of ponderosa pine, limber, or juniper. This cover type occurs primarily on the warm dry broad potential vegetation type.	(IMIX or MX-PSME) AND (PVT = pifl, pipo, psme1, or psme3)
Mixed Mesic Conifer	This cover type encompasses moist sites dominated by Douglas-fir which can be mixed with lodgepole pine, western larch, and/or subalpine fir/spruce. This type is found on sites more moist and productive than the dry Douglas-fir type. This cover type is found on both warm dry and cool moist broad potential vegetation groups.	TMIX or [(MX-PSME or IMIX) AND (PVT is not pifl, pipo, psme1, or psme3)]
Western larch Mixed Conifer	These sites are dominated by western larch, with components of Douglas-fir, lodgepole pine, and/or spruce. This type would commonly be found on the cool moist broad potential vegetation type, and is only present on the Upper Blackfoot GA.	MX-LAOC
Lodgepole Pine	This type is dominated by lodgepole pine with minor components of other species. This cover type can occur on any forested broad potential vegetation group.	MX-PICO
Aspen/ Hardwood	This cover type includes areas dominated by aspen or cottonwood, often with shrubs such as willow and alder. This type often occurs in association with riparian and moist upland areas and can be found in any forested broad potential vegetation group.	HMIX, MX-POPUL, or MX-POTR5
Spruce/fir	This cover type describes where subalpine fir and/or Engelmann spruce dominate, with minor components of other species. These are often climax forests. This cover type most often occurs on the cool moist or cold broad potential vegetation group.	MX-ABLA or MX-PIEN
Whitebark pine	The whitebark pine cover type occurs at the high elevations, most commonly on the cold broad potential vegetation group but sometimes in cool moist. Minor components of subalpine fir, spruce, or lodgepole pine may be present.	MX-PIAL
Grass	Grass can dominate the xeric and mesic grassland broad potential vegetation groups, and some dry forest types. Plant communities include forb mixes; rough fescue; Idaho fescue; western wheatgrass; bluebunch	Grass-Dry; Grass-Bunch; Grass-Singlestem

Cover Type	Description and Species Associations	Region1 Vegetation Map: DomMid40
	wheatgrass, needle-and-thread grass; tufted hairgrass; little bluestem; prairie sandreed; green needle grass; needlegrass; wheatgrass; timothy; crested wheatgrass; blue grama; kentucky bluegrass; buegrass; cool season short grass mix; cool season mid grass mix; warm season mid grass mix; warm season short grass mix; and mixed grass.	
Dry Shrub	The dry shrub cover type occurs on the xeric shrub/woodland broad potential vegetation group, as well as some dry forest sites. Dominant shrubs include sagebrush; antelope bitterbrush; shrubby cinquefoil; skunkbush sumac; curl-leaf mountain mahogany; rabbitbrush; low shrub; saltbush, soapweed yucca sagebrush, and rabbitbrush.	Shrub-Xeric; MX-CELE3
		MX-JUNIP, JUNIP
Riparian Grass/shrub	This cover type occurs typically in the riparian/wetland broad potential vegetation group, but also potentially in cool and wet forest habitat types. Common species include willow, alder, mountain brome, smooth brome, dry sedge, wet sedge/spikerush/juncus, and annual brome.	Grass-Wet
Mesic Shrub	Mesic shrubs most commonly dominate the mesic shrubland broad potential vegetation group. Species may include chokecherry, plum; rose; snowberry; huckleberry; mallow ninebark; white spirea, and buffaloberry.	Shrub-Mesic
Sparse or Non-vegetated	In addition to the vegetated cover types, some areas on the Forest are categorized as “sparse” (containing little vegetation cover, such as scree slopes) or non-vegetated (such as lakes or urban areas). These areas are excluded from the composition analysis	URBAN, WATER, SPARSE

## Individual Tree Species Presence

Tree species presence indicates the proportion of an area where there is at least one live tree per acre of a given species, of any size. This measure gives an indication of how widely distributed the species is across the landscape, although it is not necessarily dominant or even common in all the places it occurs. Most forest stands are composed of more than one tree species. As shown above, cover types are named for the dominant tree species representing the group (i.e., the ponderosa pine cover type). However, ponderosa pine as an individual species may also be found in other cover types. Therefore, the estimates for a given cover type are not the same as the distribution of the tree species for which it is named.

There are eleven native tree species found on the HLC NF, although not all occur on every GA: Rocky mountain juniper, limber pine, ponderosa pine, Douglas-fir, lodgepole pine, western larch, aspen, cottonwood, Engelmann spruce, subalpine fir, and whitebark pine.

## Size Class

Tree size is an indicator of the structure and age of forests across the landscape. Forest size classes are defined based on the predominant tree diameter in the stand (basal area weighted average diameter). The five size classes are shown in Table 4. Details on how forests are classified into size class can be found in Barber and others (2011). A general association of the size class with tree age and forest successional stage is made based upon knowledge of the successional patterns and structures on the HLC NF.

**Table 4. Forest size classes**

Size Class	Diameter Range	Description
Seedling/sapling	0 to 5 inches	The seedling/sapling size class represents the early successional stage of development. Forests are dominated by seedlings (less than 4 ½ feet tall) and saplings (less than 5 inches diameter). There may be low numbers of overstory



Size Class	Diameter Range	Description
		larger trees present. Most trees are less than 40 years old and less than 40 feet tall. On sites of lower productivity (higher elevation, poor soils) or in extremely dense stands, trees in in this class may be older because of their slower diameter growth rates.
Small tree	5 to 8.9 inches	Small size class forests are in the mid-successional stage of development, composed mostly of immature trees 5 to 8.9 inches diameter. Typical tree ages range from 40 to 75 years old. They often have a single canopy layer, but two or more layers are not uncommon, depending on disturbance history and site conditions.
Medium tree	9 to 14.9 inches	Medium size class forests are also in the mid-successional stage of development, where trees 9 to 14.9 inches diameter dominate. Vertical structures vary considerably. Tree age varies depending on species composition, site conditions, and stand density, but is typically 75 to 110 years old. On sites with harsher growing conditions or in stands of very high densities and low growth rates, trees in this medium size class might be substantially older.
Large tree	15 to 19.9 inches	Large size class forests are usually older than those in the medium class. Trees 15 to 19.9 inches diameter dominate. Most trees are over 90 years old, and most stands are in the mid or late successional stage of development. There are sites where trees of large tree size classes are substantially younger or much older.
Very large tree	20+ inches	Very large size class forests represent the oldest stands, where trees $\geq 20$ inches diameter dominate. The larger trees are typically over 130 years old, and some may be several centuries in age. Forests are in the late successional stage of development, and some correlate to old growth forest. These forests typically have a more complex structure than other successional stages.

## Large and Very Large Trees

The large and very large forest size classes described in the previous section reflect areas where large and very large trees occur in relative abundance. However, because forest size class is based on the basal area weighted average diameter of trees across the stand, it does not provide the full picture of the amount or distribution of all large and very large live trees. Large and very large trees may occur in forests dominated by smaller trees and therefore classified into smaller size classes. These components are still important pieces of ecosystem diversity. To address this, two additional indicators are considered:

- trees per acre of large and very large trees per acre
- large and very large tree concentrations

## Large and Very Large Live Trees per Acre

This indicator of large and very large trees is simply the average trees per acre present. These trees may be clumped or present as scattered, rare individuals. The trees per acre are estimated by snag analysis group because the presence of these live trees directly correlates to future large snag recruitment. A detailed description of snag analysis groups is provided in the snags section.

## Large and Very Large Live Tree Concentrations

Large and very large tree concentrations identify places where large tree components are not necessarily dominant but do occur at certain minimum densities. These minimum densities are defined to reflect quantities more meaningful for wildlife habitat, stand structure, and late seral forest conditions. The presence of these concentrations represent only one aspect of old growth characteristics, so these areas are

not necessarily old growth. They are referred to as concentrations or “subclasses” because they can occur in any of the five forest size classes.

The criteria and existing proportion of the large and very large tree subclasses on the HLC NF are displayed in Table 5.

**Table 5. Large and very large tree concentration definitions by broad potential vegetation group**

Broad potential vegetation type	Large tree concentration criteria	Very large tree concentration criteria
<b>Warm Dry</b>	At least 5 trees per acre > or = 15" diameter	At least 4 trees per acre > or = 20" diameter
<b>Cool Moist</b>	At least 10 trees per acre > or = 15" diameter	At least 10 trees per acre > or = 20" diameter
<b>Cold</b>	At least 8 trees per acre > or = 15" diameter	At least 8 trees per acre > or = 20" diameter

## Density Class and Vertical Structure

Forest density is a measure of the area occupied by trees. The density of trees can influence their growth and vigor as well as susceptibility to disturbances. It can influence the rate of forest succession and the species composition as well as other attributes such as vertical structure (the number of canopy layers). Tree density can be described in numerous ways. For the HLC NF, tree canopy cover is used as the measure of density. Canopy cover is the percentage of ground covered by a vertical projection of the outermost perimeter of the tree crowns, considering trees of all heights.

Canopy cover is low when the stand is in the earliest stage of succession and dominated by seedlings. As trees grow, crowns expand to fill up growing space, and canopy cover gradually increases. Growth of understory trees over time also adds to the canopy cover and vertical structure on many sites as the forest grows into the later successional stages. Disturbances and competition-based mortality can limit tree density. Site productivity also affects canopy cover, with more productive, moist sites supporting higher densities, and harsh sites with poor soils supporting lower densities. Frequent fire, particularly in the warm dry potential vegetation group, can maintain low canopy covers at all stages of forest succession.

Vertical structure is not a key indicator nor does it have quantitative desired conditions; however, it is described in conjunction with density. Vertical structure is categorized as single-storied (one canopy layer), two-storied (two canopy layers), or multistoried (three or more canopy layers). As with density, vertical structure is driven by succession, individual species traits, and disturbances. Some cover types, such as spruce/fir, naturally develop a continuous canopy made up of multiple layers of shade tolerant species. Other types, such as lodgepole pine, tend to grow in dense, single-storied stands.

The four canopy cover classes and associated vertical structures are described in Table 6.

**Table 6. Forest density classes and associated vertical structures**

Density Class	Diameter Range	Description
<b>Nonforested</b>	<10%	Areas with less than 10% canopy cover are considered to be nonforested. This class may include open forest savannas or persistent grass/shrub communities that occur on the warm dry broad potential vegetation group. Such sites may have multiple age classes but large, fire resistant and drought tolerant trees such as ponderosa pine are favored. This class also includes areas on any potential vegetation type that has been recently de-forested through disturbance and trees have not yet re-established. Finally, true non-forested communities are included (grasslands, shrublands, riparian/wetlands, and alpine communities).
<b>Low to Medium</b>	10-39.9%	Low and medium tree canopy cover classes represent relatively open forests with 10 to 39.9% canopy cover. This class is common in young forests. In addition, low densities are found in dry forest types at all stages of succession, where site conditions or disturbances maintain low tree density. Cool moist or cold forests may also be in this condition particularly where impacted by disturbances such as mountain pine beetle.
<b>Medium-High</b>	40-59.9%	The medium to high tree canopy cover class represents a more fully stocked forest, a condition which is common in mature moist forests of shade tolerant species. Examples of forests with this density could include mature single-storied lodgepole pine or spruce/fir multistoried stands. Dry forests may also be in this density class particularly where fire has been excluded and understory layers have developed.
<b>High</b>	60%+	The high canopy cover class includes forests with a relatively closed canopy, most often on productive sites. This density class is common in stands with a spruce/fir component in a multi-storied condition. This condition also arises in single-storied lodgepole pine and sometimes Douglas-fir that regenerate to high densities after fire. This condition may also occur in dry forests that have missed natural fire entries and developed layers in the understory.

## Snags

A dead tree, from the time it dies until it is fully decomposed, contributes to many ecological processes (Brown, Reinhardt, & Kramer, 2003). Although all snags have value, large snags are of particular importance. Snags are created at broad scales, ranging from single-tree mortality to high severity fires or insect infestations. Snag components are developed based on average snags per acre as well as the distribution of snags. The distribution reflects the percent of the area that contains one or more snags in the size class indicated. Three size classes of snags are assessed:

- medium (10" + diameter at breast height);
- large (15" + diameter at breast height); and
- very large (20"+ diameter at breast height)

When these classes are quantified in the plan components, the smaller size classes contain the snags in the larger classes. For example, the medium snag numbers include all medium, large, and very large snags.

Rather than broad potential vegetation types, the components for snags are classified by *snag analysis groups*, as defined by Bollenbacher and others (2008). These snag analysis groups are generally consistent with the broad potential vegetation groups (warm dry, cool moist, and cold), except that areas currently dominated by lodgepole pine are addressed separately. This is important for the snag analysis because lodgepole pines are uniquely characterized by their growth, form, and lack of wind firmness (Lotan & Perry, 1983). Consequently, lodgepole pines fail to grow as large as other common tree species on eastside Forests, and therefore do not contribute as many large diameter snags (Bollenbacher et al., 2008).

## Old Growth

Old growth is a forest structural condition that can exist during the late successional stage of forest development. The concept of old growth involves not only the age of a forest but also structural and functional characteristics such as large trees, size and spacing variation, large dead standing and fallen trees, broken and deformed tops, bole and root rot, multiple canopy layers, canopy gaps and understory patchiness, cessation in height growth of oldest trees, near zero net productivity, and biochemistry of secondary metabolic products in old trees (Johnson, Miyanishi, & Weir, 1995). This late-stage state of succession is not static and as old growth dies it is replaced by younger forests. The components for old growth are related to the estimated abundance (acres or percent of the area) of this condition on the landscape.

The HLC NF has adopted definitions of old growth developed by the Regional Old Growth Task Force and documented by Green and others (Green et al., 1992). This work contains specific measurable criteria to consistently define old growth. These criteria were developed based on a National definition that old growth forests are ecosystems distinguished by old trees and related structural attributes (Green et al., 1992). The definitions are specific to forest type (dominant tree species) and habitat type group. Key attributes for identification of old growth are age, numbers and diameter of the old tree component within the stand, and the overall stand density. Minimum thresholds have been established for these attributes. Associated characteristics are also defined for each old growth type, though these are not minimum criteria. They include such factors as probabilities of downed woody material and number of snags, number of canopy layers, and number of snags over 9 inches diameter at breast height. Table 7 displays the minimum old growth criteria that apply to the HLC NF.

**Table 7. Eastern Montana zone old growth type minimum criteria (Green et al 1992)**

Description		Minimum Criteria		
Old growth type <sup>1</sup>	Habitat type group <sup>2</sup>	Minimum age of large trees	Minimum number TPA/DBH	Minimum basal area (ft <sup>2</sup> /ac)
1 – DF	A	200	4 ≥ 17"	60
2 – DF	B, C, D, E, F, H	200	5 ≥ 19"	60
3 – DF	G	180	10 ≥ 17"	80
4 – PP	A, B, C	180	4 ≥ 17"	40
5 – PF	A, B	120	6 ≥ 9"	50
6 – LP	A, B, C, D, E, F, G, H, I	150	12 ≥ 10"	50
7 – SAF	C	160	12 ≥ 17"	80
8 – SAF	D, E	160	7 ≥ 17"	80
9 – SAF	F, G, H, I	160	10 ≥ 13"	60
10 – SAF	J	135	8 ≥ 13"	40
11 – WBP	D, E, F, G, H, I	150	11 ≥ 13"	60
12 – WBP	J	135	7 ≥ 13"	40

<sup>1</sup> DF = Douglas-fir; PP = ponderosa pine; PF = limber pine; LP = lodgepole pine; SAF = subalpine fir; WBP = whitebark pine

<sup>2</sup>Habitat type groups are defined in Green et al 1992, and are not equivalent to broad potential vegetation types.

## Coarse woody debris

Dead wood plays an important role in protecting soil, enhancing soil development and nutrient cycling, maintaining soil productivity over the long term, providing microsites for regeneration, retaining moisture, supporting soil micro-organisms, and providing habitat for wildlife. Downed wood is derived from snags, as well as from live trees or parts of trees that fall due to wind, during fires, and to other factors. Long, larger diameter downed wood is generally more important for wildlife because it can be used by a greater range of species and provides a stable and persistent structure, as well as better protection from weather extremes. Plan components are built to describe coarse woody debris, or downed wood that is 3” in diameter or greater, measured in tons per acre.

## Early successional forest patches

The spatial pattern of forest vegetation is a key ecosystem characteristic because it can affect ecological processes, including wildlife and plant habitat and dispersal; disturbance risk, spread and size; reforestation; watershed health; carbon storage; wildlife habitat quality; and human aesthetic values. Connectivity of forests can be affected by natural factors such as topography, soils, variation in precipitation, and wildfire but can also be affected by human developments and activities. It is also one of the most complex attributes of ecosystems to quantify. The goal of assessing connectivity and pattern is to better understand the mosaic of conditions that make up a resilient landscape.

Many elements of composition and structure could be assessed as a means to understand landscape pattern. The abundance, average and range of sizes of forest openings (transitional and seedling/sapling size classes) have been identified the key ecosystem characteristics to represent landscape pattern.

Openings in the forest, such as those created after a stand-replacing disturbance, are the most distinct and easily detectable structural conditions in a forested landscape. These early successional forests are dominated by grass, forbs, shrubs, and short trees. They are meaningful to wildlife because of their distinctive composition and openness which affects the growth and survival of plants that wildlife depend on, and strong contrast to adjacent mid or late successional forest (e.g. forest “edge”). They also represent the crucial initiation point in forest successional development, the foundation upon which rests the character and pattern of the future forest. For management purposes, it is critical to understand the size of openings expected under a natural disturbance regime.

## Literature

- Barber, J., Berglund, D., & Bush, R. (2009). *The region 1 existing vegetation classification system and its relationship to inventory data and the region 1 existing vegetation map products* (09-03 5.0). Retrieved from Missoula, MT: [http://fsweb.r1.fs.fed.us/forest/inv/classify/r1\\_ex\\_veg\\_cmi\\_4\\_09.pdf](http://fsweb.r1.fs.fed.us/forest/inv/classify/r1_ex_veg_cmi_4_09.pdf)
- Barber, J., Bush, R., & Berglund, D. (2011). *The region 1 existing vegetation classification system and its relationship to region 1 inventory data and map products* (Numbered Report 11-10). Retrieved from Missoula, MT: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5332073.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5332073.pdf)
- Berglund, D., Bush, R., Barber, J., & Manning, M. (2009). *R1 multi-level vegetation classification, mapping, inventory, and analysis system* (Numbered Report 09-01 v 2.0). Retrieved from Missoula, MT:
- Bollenbacher, B., Bush, R., Hahn, B., & Lundberg, R. (2008). *Estimates of snag densities for eastside forests in the northern region* (08-07 v2.0). Retrieved from Missoula, MT:

- Brown, J. K., Reinhardt, E. D., & Kramer, K. A. (2003). *Coarse woody debris: Managing benefits and fire hazard in the recovering forest* (General Technical Report RMRS-GTR-105). Retrieved from Ogden, UT: [https://www.fs.fed.us/rm/pubs/rmrs\\_gtr105.pdf](https://www.fs.fed.us/rm/pubs/rmrs_gtr105.pdf)
- Bush, R., Berglund, D., Leach, A., Lundberg, R., & Zeiler, J. D. (2006). *Overview of r1-fia summary database, region 1 vegetation classification, mapping, inventory and analysis report*. Retrieved from Missoula, MT: [http://fsweb.r1.fs.fed.us/forest/inv/fia\\_data/r1\\_sum\\_db.htm](http://fsweb.r1.fs.fed.us/forest/inv/fia_data/r1_sum_db.htm)
- Green, P., Joy, J., Sirucek, D., Hann, W., Zack, A., & Naumann, B. (1992). *Old-growth forest types of the northern region (errata corrected 02/05,12/07,10/08,12/11)* (R-1 SES 4/92). Retrieved from Missoula, MT:
- Johnson, E. A., Miyanishi, K., & Weir, J. M. H. (1995). Old-growth, disturbance, and ecosystem management. *Canadian Journal of Botany*, 73, 918-926.
- Lotan, J. E., & Perry, D. A. (1983). *Ecology and regeneration of lodgepole pine* (Agriculture Handbook No. 606). Retrieved from Washington, DC:
- Milburn, A., Bollenbacher, B., Manning, M., & Bush, R. (2015). *Region 1 existing and potential vegetation groupings used for broad-level analysis and monitoring*. Retrieved from Missoula, MT: [http://fsweb.r1.fs.fed.us/forest/inv/r1\\_tools/R1\\_allVeg\\_Groups.pdf](http://fsweb.r1.fs.fed.us/forest/inv/r1_tools/R1_allVeg_Groups.pdf)
- Mueggler, W. F., & Stewart, W. L. (1980). *Grassland and shrubland habitat types of western montana* (INT-66). Retrieved from
- Pfister, R. D., Kovalchik, B. L., Amo, S. F., & Presby, R. C. (1977). *Forest habitat types of montana*. Retrieved from Ogden, UT: [https://www.fs.fed.us/rm/pubs\\_int/int\\_gtr034.pdf](https://www.fs.fed.us/rm/pubs_int/int_gtr034.pdf)

## Appendix E. Priority Watersheds

### Table of Contents

<b><i>Introduction .....</i></b>	<b><i>1</i></b>
<b><i>Watershed Condition Framework.....</i></b>	<b><i>1</i></b>
<b><i>Restoration of Impaired 303(d) Listed Waterbodies .....</i></b>	<b><i>4</i></b>
<b><i>Protection of Municipal Watersheds .....</i></b>	<b><i>6</i></b>
<b><i>Source Water Protection Areas .....</i></b>	<b><i>7</i></b>
<b><i>Conservation Watershed Network .....</i></b>	<b><i>11</i></b>

### List of Tables

<b>Table 1. Number of 6<sup>th</sup> level watersheds rated in each condition class using the watershed condition framework .....</b>	<b>3</b>
<b>Table 2. Current watershed condition framework priority watersheds on the HLC*.....</b>	<b>4</b>
<b>Table 3. 303(d) listed stream segments by GA. ....</b>	<b>5</b>
<b>Table 4. Municipal and source waters of the HLC NF.....</b>	<b>7</b>
<b>Table 5. Surface water public water systems with spill response regions that overlap HLC NFS lands</b>	<b>8</b>
<b>Table 6. Surface water public water systems with watershed regions that overlap HLC NFS lands ....</b>	<b>8</b>
<b>Table 7. Groundwater Public Water Systems with intakes located within the HLC NFS lands .....</b>	<b>10</b>
<b>Table 8. Public water systems that use ground water and whose well/spring intake is outside the HLC NF, but their source water protection area “Inventory Region” (MT DEQ 2016) overlaps the HLC NF.....</b>	<b>10</b>
<b>Table 9. Conservation watershed network subwatersheds west of the continental divide on the HLC NF.....</b>	<b>13</b>
<b>Table 10. Conservation watershed network subwatersheds east of the continental divide on the HLC NF.....</b>	<b>15</b>

Page intentionally left blank.



## Introduction

One of the original purposes for establishing the National Forest System was to protect our Nation's water resources. The 2012 planning rule includes a newly created set of requirements associated with maintaining and restoring watersheds and aquatic ecosystems, water resources, and riparian areas in the plan area. The increased focus on watersheds and water resources in the 2012 planning rule reflects the importance of this natural resource, and the commitment to stewardship of our waters. As such, the HLC NF has developed an aquatic conservation strategy to address watersheds and water resources on the Forest.

The 2012 planning rule requires that plans identify watersheds that are a priority for restoration and maintenance. The 2012 planning rule requires all plans to include components to maintain or restore the structure, function, composition, and connectivity of aquatic ecosystems and watersheds in the plan area, taking into account potential stressors, including climate change, and how they might affect ecosystem and watershed health and resilience. Plans are required to include components to maintain or restore water quality and water resources, including public water supplies, groundwater, lakes, streams, wetlands, and other bodies of water. The planning rule requires that the Forest Service establish best management practices for water quality, and that plans ensure implementation of those practices.

Plans are also required to include direction to maintain and restore the ecological integrity of riparian areas. The HLC NF proposes to maintain riparian areas through riparian management zones, and related components. This direction will also protect native fish and further strengthen the Watershed Conservation Network.

The Priority Watersheds Appendix includes four sections. The first section is the watershed condition framework. The watershed condition framework is designed to restore watersheds to their natural potential condition. These watersheds require short-term investments for their restoration. The second section discusses the restoration of impaired waterbodies on the state 303(d) list that have completed total maximum daily loads (also referred to as TMDLs). These watersheds would also require short-term investments. The third section covers municipal watersheds. The final section is the Conservation Watershed Network, which is designed to provide long-term protection, connectivity, and survival of native fish.

## Watershed Condition Framework

In 2011, sixth-level watersheds (typically 10,000 to 40,000 acres) across all NFS lands were classified using the national watershed condition framework. This framework was designed to be a consistent, comparable, and credible process for improving the health of watersheds across all NFS lands. The first step was to rate the watershed condition of each watershed, utilizing existing data, knowledge of the land, and professional judgment. Watersheds were rated using a set of indicators of geomorphic, hydrologic, and biotic integrity relative to potential natural condition. The ratings are entered into a computer database, which generates an overall rating for each watershed. The results are also used to create a watershed condition class map.

Geomorphic functionality or integrity is defined in terms of attributes such as slope stability, soil erosion, channel morphology, and other upslope, riparian, and aquatic habitat characteristics. Hydrologic functionality or integrity relates primarily to flow, sediment, and water-quality attributes. Biological functionality or integrity is defined by the characteristics that influence the diversity and abundance of aquatic species, terrestrial vegetation, and soil productivity.

In each case, integrity is evaluated in the context of the natural disturbance regime, geoclimatic setting, and other important factors within the context of a watershed. The definition encompasses both aquatic and terrestrial components because water quality and aquatic habitat are inseparably related to the integrity and functionality of upland and riparian areas within a watershed. The three watershed condition classes are directly related to the degree or level of watershed functionality or integrity:

- Class 1- functioning properly: watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- Class 2 functioning-at-risk: watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.
- Class 3 impaired: watersheds exhibit low geomorphic, hydrologic, and biotic integrity relative to their natural potential condition.

In this framework, a watershed is considered in good condition if it is functioning in a manner similar to one found in natural wildland conditions (Karr and Chu 1999,<sup>1</sup> Lackey 2001<sup>2</sup>). This characterization should not be interpreted to mean that managed watersheds cannot be in good condition. A watershed is considered to be functioning properly if the physical attributes are appropriate to maintain or improve biological integrity. This consideration implies that a Class 1 watershed in properly functioning condition has minimal undesirable human impact on natural, physical, or biological processes and is resilient and able to recover to the desired condition when or if disturbed by large natural disturbances or land management activities (Yount and Neimi 1990<sup>3</sup>). By contrast, a class 3 watershed has impaired function because some physical, hydrological, or biological threshold has been exceeded. Substantial changes to the factors that caused the degraded state are commonly needed to set them on a trend or trajectory of improving conditions that sustain physical, hydrological, and biological integrity. Defining specific classes for watershed condition is obviously subjective and, therefore, problematic for several reasons. First, watershed condition is not directly observable (Suter 1993<sup>4</sup>). In nature, no distinct lines separate a watershed that is functioning properly from impaired condition, and every classification scheme is arbitrary to some extent. Second, watershed condition is a mental construct that has numerous definitions and interpretations in the scientific literature (Lackey 2001). Third, the attributes that reflect the state of a watershed are continually changing because of natural disturbances (e.g., wildfire, landslides, floods, insects, and disease), natural variability of ecological processes (e.g., flows and cycles of energy, nutrients, and water), climate variability and change, and human modifications.

The plan area is located in 296 subwatersheds. The Helena-Lewis and Clark completed our WCF analysis in 2011 and identified the following watershed condition classes: 103 watersheds were rated as functioning properly, 159 watersheds were rated as functioning at risk, and 34 watersheds were rated as impaired. Overall, the biggest sources of impairment were aquatic biota (nonnative species), road and trail issues, and water quality impairment. Table 1 is a summary of watershed condition classes across the Forest by geographic area.

---

<sup>1</sup> Karr, J.R.; Chu, L.W. 1999. Restoring life in running rivers: better biological monitoring. Washington, DC: Island Press. 206 p.

<sup>2</sup> Lackey, R.T. 2001. Values, policy, and ecosystem health. *Bioscience*. 51: 437–443.

<sup>3</sup> Yount, J.D.; Niemi, G.J. 1990. Recovery of lotic communities and ecosystems from disturbance—a narrative case study. *Environmental Management*. 14: 547–570.

<sup>4</sup> Suter, G.W. 1993. Critique of ecosystem health concepts and indexes. *Environmental Toxicology and Chemistry*. 12: 1533–1539.

**Table 1. Number of 6<sup>th</sup> level watersheds rated in each condition class using the watershed condition framework**

GA	Class 1	Class 2	Class 3	Total	% Rated as Class 3
Big Belts	3	35	7	45	15
Castles	2	9	1	12	8
Crazies	5	5	0	10	0
Divide	1	13	14	28	50
Elkhorns	1	18	2	21	10
Highwoods	3	4	0	7	0
Little Belts	21	39	4	64	6
Rocky Mountain Range	40	13	1	54	2
Snowies	15	3	0	18	0
Upper Blackfoot	12	20	5	37	14
Totals	103	159	34	296	11

The next step of the watershed condition framework was to use the watershed condition class data to identify priority watersheds, develop watershed action plans, and implement projects to maintain or restore conditions in priority watersheds. At the time of this plan revision, there are 6 priority watersheds in the plan area that have planned or ongoing restoration work occurring. Current forest priority watersheds on the HLC NF are displayed in Table 2. Future priority watersheds will be determined throughout the life of this plan.

Future priority watersheds will be determined based on aquatic habitat needs, Conservation Watershed Networks, Watershed Condition Framework, and TMDL Status. These data sets will likely drive the selection in the future due to species of concern (Bull and Westslope cutthroat trout). Also taken into consideration will be potential partner funding priorities like Montana Fish Wildlife and Parks, as well as the EPA CERCLA funded cleanup as examples. Future priority watershed will also be selected due to vegetation management needs which would likely drive budgets which in turn would drive restoration opportunities.

Priority areas for potential restoration activities could change quickly because of events such as wildfire or the introduction of invasive species. Therefore, the 2012 planning rule includes priority watersheds as plan content, so that an administrative change could be used to quickly respond to changes in priority.

Benefits from implementing the watershed condition framework are as follows:

- Strengthens the effectiveness of Forest Service watershed restoration
- Establishes a consistent, comparable, credible process for determining watershed condition class
- Enables a priority-based approach for the allocation of resources for restoration
- Improves Forest Service reporting and tracking of watershed condition
- Enhances coordination with external agencies and partners

**Table 2. Current watershed condition framework priority watersheds on the HLC\***

Sub watershed Name (HUC 6)	Geographic Area	Current Priority Level*	Attributes Rated at Risk in Watershed Condition Framework Assessment	Current Planning Efforts	Overlapping Priorities and Partnerships	Notes
Headwaters Sheep creek	Little Belts	High	303(d) listed stream, aquatic habitat, aquatic biota, water quality, riparian/wetlands, soil productivity, road density, weeds	Upper Sheep VMP	Montana Fish Wildlife and Parks	Opportunity for riparian/wetland restoration and weed treatments. No in-stream fish habitat restoration needs identified 303(d) listing resulting from historic logging practices and poor road conditions.
Cabin Gulch	Big Belts	High	303(d) listed stream, Water Quality, Riparian, Channel Morphology, Species Habitat, soils	Cabin Gulch Vegetation Management, Culvert Upgrades, Road improvements and decommissioning.	Broadwater County, Montana Fish Wildlife & Parks, Youth Forest Monitoring Program	Opportunity for riparian/wetland restoration, 2015 Cabin Gulch Fire.
Upper Tenmile	Divide	High	303(d) listed stream, Aquatic biota, Mining, non-native fish, Aquatic Habitat, road density, road density, Trails water quality, Soil, Fire effects/fire regime,	Tenmile-South Helena Vegetation Management Project, NFS Mine Remediation Projects, Road Decommissioning	City of Helena, Montana Fish Wildlife & Parks, Tenmile Watershed Collaborative, US EPA, Upper Tenmile Group, Lake Helena Watershed Group, Baxendale Fire Department, Tri County Fire	Opportunity for riparian/wetland restoration and weed treatments. in-stream fish habitat restoration needs identified 303(d) listing resulting from historic logging practices and poor road conditions, City of Helena Municipal Watershed
Telegraph Creek	Divide	High	303(d) listed stream, Aquatic biota, Mining, non-native fish, Aquatic Habitat, road density, road density, Trails water quality, Soil, Fire effects/fire regime	Upper Tenmile hazardous fuels reduction and timber salvage, abandon mine reclamation, road decommissioning,	City of Helena, Montana Fish Wildlife & Parks, Lake Helena Watershed Group, US EPA, Montana DEQ	Opportunity for riparian/wetland restoration and weed treatments. <u>Reduce sediment from roads.</u> in-stream fish habitat restoration needs identified 303(d) listing resulting from historic logging and mining practices and poor road conditions,

\*potential future priority watershed condition framework watersheds will be determined throughout the life of this plan

## Restoration of Impaired 303(d) Listed Waterbodies

In 1972 Congress passed the Water Pollution Control Act, more commonly known as the Clean Water Act. Its goal is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The Clean Water Act requires each state to set water quality standards to protect designated beneficial water uses and to monitor the attainment of those uses. Fish and aquatic life, wildlife,

recreation, agriculture, industrial, and drinking water are all types of beneficial uses. Streams and lakes (also referred to as waterbodies) that do not meet the established standards are called “impaired waters.” These waters are identified on the 303(d) list, named after Section 303(d) of the Clean Water Act, which mandates the monitoring, assessment, and listing of water quality limited waterbodies.

Both Montana state law (75 MCA § 5-703) and section 303(d) of the federal Clean Water Act require the development of total maximum daily loads for impaired waters where a measurable pollutant (for example, metals, nutrients, e. coli) is the cause of the impairment. A total maximum daily load is a loading capacity and refers to the maximum amount of a pollutant a stream or lake can receive and still meet water quality standards.

The Montana Water Quality Act requires the Montana Department of Environmental Quality to develop total maximum daily loads for streams and lakes that do not meet, or are not expected to meet, Montana water quality standards. The Montana Department of Environmental Quality submits the total maximum daily loads to the United States Environmental Protection Agency for approval. Total maximum daily loads provide an approach to improve water quality so that streams can support and maintain their state-designated beneficial uses.

According to the State 303(d) list, 55 stream segments within the plan area are not meeting water quality standards Montana Department of Environmental Quality, 2016) (Table 3). Thirty-five of these are listed for mining related impacts, and the remaining 20 are listed for grazing or habitat quality issues. Total maximum daily load assessments have been prepared and are being implemented for several sub-basins in the plan area, including those in the Divide, Elkhorns, Upper Blackfoot, Castles and the Little Belts GAs.

**Table 3. 303(d) listed stream segments by GA.**

<b>Geographic Area</b>	<b>Number of Stream Segments</b>	<b>Miles</b>	<b>Sources of Pollutants</b>	<b>TMDL Assessments</b>
Big Belts	7	36	Mostly grazing, road impacts, mining in Confederate Gulch	Deep Creek, Canyon Ferry
Divide	14	54	Primarily mining impacts, road impacts	Little Blackfoot, Lake Helena, Boulder-Elkhorn
Elkhorns	11	40	Abandoned mines, road impacts, water diversions	Boulder-Elkhorn, Lake Helena
Little Belts	8	99	Mining, road impacts and grazing impacts	Missouri-Cascade/Belt Creek, Sheep Creek
Rocky Mountain Range	1	4	Grazing and flow alterations, road impacts	Sun River (completed)
Snowies	1	2	Grazing and road impacts	No
Upper Blackfoot	13	54	Abandoned mines, road impacts	Blackfoot Headwaters, Middle Blackfoot-Nevada Creek

Across the planning area, water quality monitoring in conjunction with forest project activities have been occurring since the 1986 forest plans were developed for each forest. Both the Helena and the Lewis & Clark NFs had extensive watershed monitoring programs.

For more than three decades, data has been collected at 55 water quality monitoring sites on the Helena National Forest to monitor the majority of the timber sales and other major projects. The number of years of data collection at each site has varied based on project needs. In fiscal year 2013, 22 water quality

monitoring stations were maintained, 3 rain gauge monitoring sites were installed, 5 roadside hazard tree units were monitored, and 133 decommissioned roads were evaluated for closure effectiveness. In addition, other data collection efforts on the Forest have included various total maximum daily load inventory and monitoring programs, the Helena National Forest Youth Forest Monitoring Program, which included 12 water quality sites, and monitoring done by other governmental agencies (such as, Montana Department of Environmental Quality and United States Environmental Protection Agency).

On the Lewis & Clark National Forest, monitoring was more focused around grazing allotments. Ten exclosures have benchmarked monitoring reaches where monitoring has included: up to 10 cross-sections (both inside and outside exclosures), photo points, sinuosity, pebble counts, and slope measurements. Other monitoring has been focused on road obliteration project monitoring, which includes documentation of vegetative recovery, weeds, stream crossings, and erosion along obliterated roads.

## Protection of Municipal Watersheds

The 1986 forest plans identified portions of four sixth level watersheds as municipal water supplies: Tenmile Creek, McClellan Creek, Belt Creek-Carpenter Creek, and North Fork Smith River-Trout Creek. Big Spring Creek is the municipal watershed for the city of Lewistown and was not identified in the 1986 plans. These watersheds provide drinking water to five cities or towns by either a reservoir, groundwater, or water diversion. See individual GA maps in Appendix A for the locations of municipal watersheds. Also see Table 4 for a summary of municipal watersheds on the Helena-Lewis and Clark National Forest.

Tenmile Creek and its tributaries, located in the Divide GA, is the municipal water source for the City of Helena. Diversions are located on Tenmile Creek above Rimini and near the mouths of Beaver Creek, Minnehaha Creek, Moose Creek, and Walker Creek. Water from all diversions is carried to the Tenmile Water Treatment Plant in a common buried pipeline. In addition, Helena stores water in the upper part of the watershed from several tributaries in Scott and Chessman Reservoirs when stream flow is high. The Red Mountain Flume carries water from some of these tributaries to Chessman reservoir. Vegetation treatment efforts are occurring around the flume and reservoir. Further treatments in the rest of the watershed are in the planning process for the Tenmile South Helena Project. Streams in the lower portion of the Tenmile watershed do not meet drinking water quality standards, but above the diversions water quality does generally meet standards. The primary objective of this project is to reduce the risk for a high intensity wildfire and associated adverse post-fire watershed effects in the watershed.

The City of East Helena uses McClellan Creek in the Elkhorn GA for one source of municipal water. This source is an infiltration gallery located approximately five miles south of East Helena, in the McClellan Creek drainage, downstream of the planning area. The infiltration gallery draws water into two collection systems installed into alluvium near the creek. Recharge to McClellan Creek occurs in the Elkhorn Mountains on NFS lands.

Source water for the town of White Sulphur Springs municipal watershed is Willow Creek in the Smith River-Trout Creek sixth level watershed. The Willow Creek municipal watershed is located in the northwest corner of the Castles GA. The Castle Mountains landscape assessment of 2012 described conditions within the municipal watershed as good. Specifically, the watershed is fenced out and with the exception of few trespassers, livestock access is nonexistent. Public impacts are very small as access and roads are negligible. It has a healthy riparian area with a great diversity of plants including cottonwood, aspen, dogwood, alder, and willow. Mixed conifers adjacent to the channel provide an excellent source of large woody debris which forms numerous log jams along the profile. A boulder dominated channel bed, less-prone to degradation when compared to other project area channels, dissipates the 500 year flood energy efficiently and shows no detrimental effects from natural events. The overall condition of the

watershed is excellent but hillslopes surrounding the creek have high fuel loading (dead lodgepole pine). Treatments proposed for the watershed include thinning and prescribed burning.

The town of Neihart uses O'Brien Creek and Shorty Creek; both located within Belt Creek-Carpenter Creek sixth level watershed in the Little Belts GA. There have been turbidity issues linked to a powerline access road near O'Brien Creek and occasionally does not meeting EPA Safe Drinking Water Standards. The City uses Shorty Creek during those times. The City received a state grant through the Treasure State Endowment Program in 2015 and has applied for a project grant to implement this plan to improve their overall system.

Not identified in the 1986 Lewis and Clark Forest Plan is the municipal watershed for the City of Lewistown which receives its water from Big Spring Creek. The recharge area for Big Spring Creek is located in the Middle and East Fork of Big Spring Creek sixth level watersheds located south of town. A spring creek, Big Spring Creek receives recharge from the headwater basins in the Big Snowy Mountains located on NFS lands.

**Table 4. Municipal and source waters of the HLC NF**

Community	Geographic Area	Hydrologic Unit Code	Hydrologic Unit Code Name	Municipal and Source Water
Neihart	Little Belts	100301050102	Carpenter Creek-Belt Creek	O'Brien and Shorty Creeks
White Sulphur Springs	Castles	100301030105	Trout Creek-North Fork Smith River	Willow Creek
Helena	Divide	100301011401	Upper and Middle Tenmile Creek	Tenmile, Banner, Moose, Minnehaha, Beaver and Porcupine Creeks.
East Helena	Elkhorn	100301011307	McClellan Creek	McClellan Creek
Lewistown	Snowies	100401030701	Middle Fork Big Spring Creek	All of the Big Spring Creek Groundwater source watersheds
		100401030702	East Fork Big Spring Creek	

## Source Water Protection Areas

Source water protection areas protect public water systems from contamination in accordance with the 1996 amendments to the Safe Drinking Water Act. Public water systems are defined under the Safe Drinking Water Act as entities that provide "water for human consumption through pipes or other constructed conveyances to at least 15 service connections or serves an average of at least 25 people for at least 60 days a year." Montana Department of Environmental Quality's Source Water Protection Program provides guidance and approval of source water protection areas within the State of Montana. Source water protection areas in Montana are divided into distinct regions according to the time water takes to reach a public water system intake. The purpose of subdividing source water protection areas in this way is to prioritize source water protection efforts. Montana Department of Environmental Quality has identified management goals within each of these regions, and these management goals are discussed in context of the water systems located within, adjacent, or downstream of the HLC NF. Public water supplies and source water assessments can be found on the Montana Department of Environmental Quality website: <http://svc.mt.gov/deq/wmadst/default.aspx?requestor=DST&type=SWP>

Public water system intakes on surface water sources, i.e. streams, are the most susceptible to contamination from land management activities within the HLC NF. The City of Helena is the only public

water system diverting surface water from streams within the HLC NF, specifically from Beaver Creek, Minnehaha Creek, and Moose Creek in the Tenmile Creek watershed. The source water protection areas of these surface water intakes includes a “Spill Response” area that is buffered along each source stream measuring a maximum of 10 miles in length, 1/2 mile from both streambanks, and 1/2 mile downstream from the surface water intake and is confined to the extent within the contributing watershed. These spill response regions are to be managed to prevent releases of contaminants where they can be drawn directly into a water intake with little lag time. In addition to the City of Helena’s surface water intakes, 2 other communities have Spill Response areas that overlap the HLC NF, specifically the Town of Neihart’s surface water intake on O’Brien and Shorty Creeks and the City of White Sulphur Springs intake on Willow Creek (Table 2).

**Table 5. Surface water public water systems with spill response regions that overlap HLC NFS lands**

<b>Public Water System Number</b>	<b>Public Water System Primary Name</b>	<b>GA</b>	<b>Water Source</b>	<b>Class of Public Water System per the Safe Drinking Water Act</b>	<b>Population served by Public Water System</b>
MT0000360	City of White Sulphur Springs	Castles	Willow Creek	Community	1,000
MT0000241	Helena Water System	Divide	Tenmile Intakes Watershed	Community	31,005
MT0000298	Town of Neihart	Little Belts	O’Brien Creek/Shorty Creek	Community	229

In addition to the spill response region, the rest of the contributing watershed upstream of each surface water intake is the “watershed region” part of the source water protection area, in which management is to maintain and improve the long-term quality of surface water used by the public water system. In addition to the 3 spill response regions that overlap the HLC NF, 12 public water systems located downstream of the forest have watershed regions that extend up into the forest. All 15 of these surface public water systems collectively serve approximately 100,000 people (Table 3).

**Table 6. Surface water public water systems with watershed regions that overlap HLC NFS lands**

<b>Public Water System Number</b>	<b>Public Water System Primary Name</b>	<b>GA</b>	<b>Water Source</b>	<b>Class of Public Water System per the Safe Drinking Water Act</b>	<b>Population served by Public Water System</b>
MT0000416	Montana Aviation Research Co	Big Belts, Little Belts, Elkhorns, Divide, Castles, Crazyes, Snowies	Missouri River	Community	62
MT0003448	Rock Creek Marina and Campground	Big Belts, Little Belts, Elkhorns, Divide, Castles, Crazyes, Snowies	Ft Peck Reservoir	Non-community	50
MT0000415	Glasgow, City of	Big Belts, Little Belts, Elkhorns,	Missouri River	Community	3,253



<b>Public Water System Number</b>	<b>Public Water System Primary Name</b>	<b>GA</b>	<b>Water Source</b>	<b>Class of Public Water System per the Safe Drinking Water Act</b>	<b>Population served by Public Water System</b>
		Highwoods, Divide, Castles, Crazyes, Snowies			
MT0042450	Hell Creek State Park	Big Belts, Little Belts, Elkhorns, Highwoods, Divide, Castles, Crazyes, Snowies	Fort Peck Reservoir	Non-Community	50
MT0000218	Fort Peck, Town of	Big Belts	Fort Peck Lake	Community	240
MT0000360	White Sulphur Springs, City of	Castles	Willow Creek	Community	1000
MT0000290	Melstone, Town of	Castles, Crazyes, Little Belts, Snowies	Musselshell River	Community	170
MT0000241	Helena Water Department	Divide	Intake 4 Minnehaha Creek, Intake 5 Moose Creek, Intake 2 Ten Mile Creek, Intake 3 Beaver Creek, Intake 6 Walker Creek	Community	31,005
MT0000192	Culbertson, Town of	Divide	Missouri River	Community	1,700
MT0000525	Great Falls, City of	Little Belts	Missouri River	Community	60,000
MT0000298	Neihart, Town of	Little Belts	O'Brien Creek	Community	229
MT0000400	Tiber County Water District	Rocky Mountain Range	Tiber Reservoir	Community	750
MT0002669	Loma County Water District	Rocky Mountain Range	Marias River	Community	200
MT0000173	Chester, Town of	Rocky Mountain Range	Tiber Reservoir	Community	870

Groundwater sources also supply drinking water in and around the HLC NF. There are 9 public water systems withdrawing groundwater at 12 locations within HLC NFS lands, coming from 9 wells and direct from 3 springs. Montana's Source Water Protection Program states that areas located within 100 feet of these ground water sources is the "control zone" for each intake, and this area is to be managed to protect sources from damage and to prevent direct introduction of contaminants into sources or the immediate surrounding areas. These 9 public water systems withdrawing groundwater at 12 locations on NFS lands are the only control zones that intersect the HLC NF (Table 4).

**Table 7. Groundwater Public Water Systems with intakes located within the HLC NFS lands**

<b>Public Water System Number</b>	<b>Public Water System Primary Name</b>	<b>GA</b>	<b>Class of Public Water System per the Safe Drinking Water Act</b>	<b>Population Served by the Water System</b>
MT0003418	Feathered Pipe Ranch	Divide	Non-Community	58
MT0062321	Park Lake Campground (FS)	Divide	Non-Community	150
MT0000591	Forest Park Water Users Association	Elkhorns	Community	323
MT0001526	Showdown Ski Lift Inc (FS SU)	Little Belts	Non-Community	448
MT0000789	Camp Rotary Club Monarch (FS SU)	Little Belts	Non-Community	40
MT0003151	Sun Canyon Lodge (FS SU)	Rocky Mountain Range	Non-Community	35
MT0002076	Teton Pass Ski Area Inc (FS SU)	Rocky Mountain Range	Non-Community	150
MT0062323	Lincoln Ranger Station (FS)	Upper Blackfoot	Non-Transient Non-Community	125
MT0003919	Mountain View Coop Lincoln	Upper Blackfoot	Non-Community	100

Beyond the 100 foot control zones, the areas within 1 mile of each ground water public water system source are typically designated as “inventory regions” by Montana Department of Environmental Quality that will be managed to minimize susceptibility to contamination. The delineation of these inventory regions can also be defined using other methodologies than a simple 1-mile buffer depending on the information available and circumstances, and these areas are delineated by Montana Department of Environmental Quality. Management in these inventory regions will be focused on pollution prevention activities where water is likely to flow to a public water system well intake within a specified time-period. These inventory regions have various degrees of delineation on the Forest and management in these inventory regions will be considered at the site-specific project level. Best management practices can be implemented to control non-point sources of contamination in these areas (Montana Department of Natural Resources and Conservation, 1999).

**Table 8. Public water systems that use ground water and whose well/spring intake is outside the HLC NF, but their source water protection area “Inventory Region” (MT DEQ 2016) overlaps the HLC NF**

<b>Public Water System number</b>	<b>Public Water System Primary Name</b>	<b>GA</b>	<b>Class of Public Water System per the Safe Drinking Water Act</b>	<b>Population served by Public Water System</b>
MT0004049	Grassy Mountain Lodge	Big Belts	Non-Community	33
MT0003421	York Bar	Big Belts	Non-Community	50
MT0000243	Canyon Ferry Village System	Big Belts	Community	47
MT0000591	Forest Park Water Users	Divide	Non-Community	323
MT0003418	Feathered Pipe Ranch	Divide	Non-Community	58
MT0062321	Park Lake Campground	Divide	Non-Community	150

<b>Public Water System number</b>	<b>Public Water System Primary Name</b>	<b>GA</b>	<b>Class of Public Water System per the Safe Drinking Water Act</b>	<b>Population served by Public Water System</b>
MT0000030	Blue Sky Heights WUA Clancy	Elkhorns	Non-Community	250
MT0000240	Harlowton City of	Little Belts, Castles, Crazies	Community	1050
MT0000789	Camp Rotary Club Monarch	Little Belts	Non-Community	40
MT0040745	Giant Springs State Park	Little Belts	Non-Community	1011
MT0043637	Headquarters Building Region	Little Belts	Non-Community	180
MT0000298	Neihart Town of	Little Belts	Community	229
MT0000334	Stanford Town of	Little Belts	Community	540
MT0003704	Source Giant Springs Inc	Little Belts	Non-Community	3007
MT0001526	Showdown Ski Lift Inc	Little Belts	Non-Community	448
MT0000788	Theiltges Saint Thomas Camp	Little Belts	Non-Community	74
MT0000175	Choteau City of	Rocky Mountain Range	Community	1691
MT0004532	Allens Manix Store	Rocky Mountain Range	Non-Community	33
MT0001378	Firebrand Food and Ale Restaurant	Rocky Mountain Range	Non-Community	30
MT0001429	Augusta School District 45	Rocky Mountain Range	Non-Community	86
MT0001437	Lazy B Bar Augusta	Rocky Mountain Range	Non-Community	50
MT0003134	Summit Mountain Lodge	Rocky Mountain Range	Non-Community	42
MT0002076	Teton Pass Ski Area Inc	Rocky Mountain Range	Non-Community	150
MT0062323	Lincoln Ranger Station	Upper Blackfoot	Non-Transient, Non-Community	125
MT0003919	Mountain View Coop Lincoln	Upper Blackfoot	Non-Community	100
MT0001921	Mountain View MB HM PK	Upper Blackfoot	Non-Community	150

## Conservation Watershed Network

A conservation watershed network is a designated collection of watersheds where management emphasizes habitat conservation and restoration to support native fish and other aquatic species. The goal of the network is to sustain the integrity of key aquatic habitats to maintain long-term persistence of native aquatic species. Designation of conservation watershed networks, which should include watersheds that are already in good condition or could be restored to good condition, are expected to protect native fish and help maintain healthy watersheds and river systems. Selection criteria for inclusion should help identify those watersheds that have the capability to be more resilient to ecological change and disturbance induced by climate change. For example, watersheds containing unaltered riparian vegetation will tend to protect streambank integrity and moderate the effects of high stream flows. Rivers with high connectivity and access to their floodplains will experience moderated floods when compared to

channelized and disconnected stream systems. Wetlands with intact natural processes slowly release stored water during summer dry periods, whereas impaired wetlands are likely less effective retaining and releasing water over the season. For all of these reasons, conservation watershed networks represent the best long-term conservation strategy for native fish and their habitats.

Many watersheds on the forest that support the healthiest populations of native trout already have their headwaters protected through lands managed as roadless areas, Congressionally-designated wilderness (Bob Marshall and Scapegoat Wilderness) or the Helena-Lewis and Clark's wild and scenic rivers. These special places are the building blocks of a conservation network as naturally functioning headwaters have a large influence on the function of downstream stream reaches.

The best available science indicates the forest is and will be important for conservation of native fish (bull trout and westslope cutthroat trout) across their range. Multiple documents and agreements were reviewed. Uniquely, the planning area is located along both sides of the continental divide and is predicted to provide cold water into the future due to the effects of climate change being slower in high elevation mountain streams. The climate shield model<sup>5</sup> and temperature model across the HLC NF sub-watersheds (6th hydrologic unit code) look closely at where cold water is predicted to persist into the future in the face of climate change. The models both identified that cold water is predicted to persist in many of our local bull and west slope cutthroat trout sub-watersheds that were previously identified as priority watersheds under the Inland Native Fish Strategy. Therefore, we carried over our priority bull and westslope cutthroat trout watersheds and those watersheds designated as critical habitat by the USFWS into our networks.

Multi-scale analysis is consistent with guidance contained in the Interior Columbia Basin Ecosystem Management Project Memorandum of Understanding approved by senior managers in several of the western federal land management and regulatory agencies (Environmental Protection Agency, National Marine Fisheries Service, USFWS, Bureau of Land Management, and the USFS). The memorandum updated science findings from the original Interior Columbia Basin Ecosystem Management Project effort of the late 1990s and guides inclusion of best available science into land management plan revisions.

At the broadest of scale considerations, information in USFWS's bull trout recovery plan was reviewed to help place habitat and core populations located within the HLC NF in context with recovery needs of the species across its range in the western United States. For recovery units like the Columbia Headwaters, the recovery plan strategy states, "A viable recovery unit should demonstrate that the three primary principles of biodiversity have been met: representation (conserving the breadth of the genetic makeup of the species to conserve its adaptive capabilities); resilience (ensuring that each population is sufficiently large to withstand stochastic events); and redundancy (ensuring a sufficient number of populations to provide a margin of safety for the species to withstand catastrophic events)."

Additional information contained in the *Columbia Headwaters Recovery Unit Implementation Plan*, was also reviewed. Types of information contained in the two USFWS documents included threats directly influencing individual bull trout survival, as well as threats to habitat. Primary threats were broken into different categories: habitat, demographic, and invasive species. Recovery actions for the HLC NF focus on fish management and invasive species removal to help recover bull trout in the Columbia Headwaters recovery unit. In addition to primary threats, the recovery plan also recommends actions should be pursued to help provide resilience to "difficult to-manage-threats such as climate change."

---

<sup>5</sup> Isaak, D., M. Young, D. Nagel, D. Horan and M. Groce. 2015. "The cold-water climate shield: Delineating refugia for preserving salmonid fishes through the 21st Century." *Global Change Biology* 21:2540–2553.

The *U.S. Forest Service Bull Trout Conservation Strategy* was also reviewed to further identify opportunities to increase effectiveness of the network. Prior to the release of the *USFWS Bull Trout Recovery Plan*, the Northern Region of the Forest Service developed the *U.S. Forest Service Bull Trout Conservation Strategy*.

The final step in the conservation watershed network identification process compared watersheds identified for the current plan revision against priority watersheds first identified by the Inland Native Fish Strategy. This step was taken to help ensure important information had not been overlooked by this effort. Table 5 and Table 6 display the proposed conservation watershed network subwatersheds west and east of the continental divide.

Lastly, as required in the 2012 planning rule is the addition of Municipal watersheds that are located on managed lands

**Table 9. Conservation watershed network subwatersheds west of the continental divide on the HLC NF**

Geographic Area	4 <sup>th</sup> Code HUC (HUC #)	5 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC Acres
Divide	Upper Clark Fork (17010201)	Little Blackfoot River Headwaters (1701020105)	Ontario Creek (170102010501)	12,801
			Little Blackfoot River-Larabee Gulch (170102010502)	18,162
			Telegraph Creek (170102010503)	12,227
			Mike Renig Gulch (170102010504)	7,332
			Upper Dog Creek (170102010505)	20,365
			Lower Dog Creek (170102010506)	16,625
			Little Blackfoot River-Hat Creek (170102010507)	13,522
		Lower Little Blackfoot River (1701020106)	Snowshoe Creek (170102010602)	11,609
			Little Blackfoot River-Elliston Creek (170102010603)	20,188
			Carpenter Creek (170102010604)	16,815
			Trout Creek (170102010605)	11,006
			Upper Dog Creek (170102010607)	8,709
			Threemile Creek (170102010610)	14,310
Upper Blackfoot	Blackfoot (17010203)	Blackfoot River Headwaters (1701020302)	Blackfoot River-Willow Creek (170102030201)	12,409
			Blackfoot River-Anaconda Creek (170102030202)	17,154

Geographic Area	4 <sup>th</sup> Code HUC (HUC #)	5 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC Acres
			Upper Alice Creek (170102030203)	12,561
			Lower Alice Creek (170102030204)	11,697
			Hogum Creek (170102030205)	7,630
			Blackfoot River-Hardscrabble Creek (170102030206)	12474
		Landers Fork (1701020301)	Upper Landers Fork (170102030101)	18,676
			Middle Landers Fork (170102030102)	23,776
			Copper Creek (170102030103)	26,005
			Lower Landers Fork (170102030104)	15,662
		Blackfoot River-Keep Cool Creek (1701020309)	Humbug Creek (170102030301)	15,451
			Poorman Creek (170102030302)	25,783
			Beaver Creek (170102030303)	11,617
			Keep Cool Creek (170102030304)	22,834
			Willow Creek (170102030306)	12,098
			Sauerkraut Creek (170102030307)	8,524
			Blackfoot River-Lincoln (170102030308)	11,399
			Arrastra Creek (170102030309)	15,084
			Blackfoot River-Little Moose Creek (170102030310)	20,036
		Nevada Creek (1701020304)	Nevada Creek Headwaters (170102030401)	25,255
			Washington Creek (170102030403)	8,013
			Jefferson Creek (170102030404)	6,799
			Buffalo Gulch (170102030405)	9,160
		Lower North Fork Blackfoot River (1701020307)	Rock Creek (170102030703)	25,412

**Table 10. Conservation watershed network subwatersheds east of the continental divide on the HLC NF**

<b>Geographic Area</b>	<b>4<sup>th</sup> Code HUC (HUC #)</b>	<b>5<sup>th</sup> Code HUC (HUC #)</b>	<b>6<sup>th</sup> Code HUC (HUC #)</b>	<b>6<sup>th</sup> Code HUC Acres</b>
Big Belts	Upper Missouri River (10030101)	Missouri River-Dry River (1003010109)	Greyson Creek (100301010902)	15,517
			Ray Creek (100301011003)	15,985
		Missouri River-Upper Canyon Ferry Lake (1003010110)	Gurnett Creek (100301011005)	14,040
			Duck Creek (100301011101)	20,792
		Missouri River-Middle Canyon Ferry Lake (1003010111)	White Creek (100301011106)	20,960
			Avalanche Creek (100301011202)	25,745
		Missouri River-Lower Canyon Ferry Lake (1003010112)	Magpie Creek (100301011204)	16,729
			Upper Beaver Creek (100301011701)	19,583
	Smith River (10030103)	Beaver Creek (1003010117)	Lower Beaver Creek (100301011703)	21,043
			Thompson Gulch (100301030303)	13,642
		Smith River – Newlan Creek (1003010303)	Upper Camas Creek (100301030501)	21,624
		Rock Creek (1003010306)	Upper Rock Creek (100301030602)	21,740
Castles	Smith River (10030103)	North Fork Smith River (1003010301)	Fourmile Creek (100301030104)	16,271
			NF Smith River-Trout Creek (100301030105)	31,980
		South Fork Smith River (1003010302)	Cottonwood Creek (100301030203)	6,921
Divide	Upper Missouri River (10030101)	Prickley Pear Creek (1003010113)	Clancy Creek (100301011304)	20,990
		Tenmile Creek (1003010114)	Middle Tenmile Creek	
			Upper Tenmile Creek (100301011401)	6,130
			Greenhorn Creek (100301011403)	12,932

Geographic Area	4 <sup>th</sup> Code HUC (HUC #)	5 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC Acres
			Skelly Gulch (100301011404)	7,885
Elkhorns	Boulder River (10020006)	Lower Boulder River (1002000605)	Muskrat Creek (100200060501)	25,541
	Upper Missouri River (10030101)	Missouri River-Crow Creek (1003010107)	Headwaters Crow Creek (100301010701)	15,293
			Upper Crow Creek (100301010702)	16,020
			South Fork Crow Creek (100301010703)	10,468
		Missouri River-Middle Canyon Ferry Lake (1003010111)	Lower Beaver Creek (100301011105)	20,179
		Prickley Pear Creek (1003010113)	Headwaters Prickley Pear Creek (100301011301)	19,228
			Warm Springs Creek (100301011303)	13,235
			Upper Prickley Pear Creek (100301011306)	16,436
			McClellan Creek (100301011307)	23,215
Highwoods	Upper Missouri-Dearborn (10030102)	Highwood Creek (1003010213)	Headwaters Highwood Creek (100301021301)	16,040
	Belt Creek (10030105)	Lower Belt Creek (1003010504)	Little Belt Creek (100301050402)	24,526
	Arrow Creek (10040102)	Upper Arrow Creek (1004010202)	Cottonwood Creek (100401020207)	32,302
Little Belts	Belt Creek (10030105)	Upper Belt Creek (1003010501)	Jefferson Creek– Belt Creek (100301050101)	20,793
			Carpenter Creek-Belt Creek (100301050102)	26,105
			Upper Dry Fork Belt Creek (100301050103)	18,512
			Lower Dry Fork Belt Creek (100301050104)	21,274
			Hoover Creek-Belt Creek (100301050105)	30,975
		Big Otter Creek (1003010502)	Headwaters Big Otter Creek (100301050201)	12,917
		Middle Belt Creek (1003010503)	Tillinghast Creek (100301050301)	22,191
			Pilgrim Creek	18,259



Geographic Area	4 <sup>th</sup> Code HUC (HUC #)	5 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC Acres
			(100301050302)	
			Logging Creek (100301050303)	27,092
			Iron Creek – Belt Creek (100301050304)	15,689
	Judith River (10040103)	Middle Fork Judith River (1004010303)	Cleveland Creek (100401030301)	32,866
			Yogo Creek (100401030303)	29,275
			Middle Fork Judith River (100401030304)	24,116
		South Fork Judith River (1004010304)	Upper South Fork Judith River (100401030401)	35,258
		Dry Wolf Creek (1004010311)	Upper Dry Wolf Creek (100401031101)	28,732
		Upper Wolf Creek (1004010312)	Running Wolf Creek (100401031201)	23,479
		Smith River (10030103)	Headwaters Sheep Creek (100301030401)	27,663
			Upper Tenderfoot Creek (100301030801)	26,105
			Upper Deep Creek (100301030903)	11,267
Rocky Mountain Range	Sun River (10030104)	North Fork Sun River (1003010401)	Gates Creek (100301040105)	9,135
		Willow Creek (1003010403)	Little Willow Creek-Willow Creek (100301040302)	24,034
		Sun River-Gibson Reservoir (1003010404)	Gibson Reservoir (100301040401)	23,697
		Elk Creek (1003010405)	Ford Creek (100301040501)	15,895
			Upper Smith Creek (100301040502)	23,064
	Two Medicine River (10030201)	Upper Two Medicine River (1003020101)	Upper South Fork Two Medicine River (100302010103)	22,836
			Lower South Fork Two Medicine River (100302010104)	42,986
			Little Badger Creek (100302010105)	24,028
		Badger Creek (1003020102)	Headwaters Badger Creek (100302010201)	38,358
			Lonesome Creek–Badger Creek	20,891

Geographic Area	4 <sup>th</sup> Code HUC (HUC #)	5 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC (HUC #)	6 <sup>th</sup> Code HUC Acres
			(100302010202)	
		Dupuyer Creek (1003020105)	Upper Dupuyer Creek (100302010501)	30,115
		Birch Creek (1003020106)	South Fork Birch Creek (100302010602)	16,420
	Teton River (10030205)	Teton River-North Fork Teton River (1003020501)	Upper North Fork Teton River (100302050101)	13,317
			Middle North Fork Teton River (100302050102)	27,339
			South Fork Teton River (100302050103)	17,717
			Lower North Fork Teton River (100302050104)	11,082
Snowies	Judith River (10040103)	Big Spring Creek (1004010307)	Middle Fork Big Spring Creek (100401030701)	15, 776
			East Fork Big Spring Creek (100401030702)	34,528
		Judith River-Cottonwood Creek (1004010307)	Cottonwood Creek (100401030709)	37,238
	Flatwillow Creek (10040203)	Upper Flatwillow Creek (1004020304)	Upper North Fork Flatwillow Creek (100402030401)	32,587
Upper Blackfoot	Upper Missouri River (10030101)	Upper Little Prickly Pear Creek (1003010118)	Virginia Creek (100301011804)	19,407
			Upper Canyon Creek (100301011805)	15,169

# Appendix F. Evaluation of Wilderness Inventory Areas

## Table of Contents

<b>Introduction .....</b>	<b>1</b>
<b>Wilderness Evaluation Process Overview .....</b>	<b>1</b>
<b>Wilderness Inventory.....</b>	<b>1</b>
<b>Public Comment to the Inventory .....</b>	<b>2</b>
<b>Summary of Wilderness Recommendations for the Proposed Action.....</b>	<b>4</b>
<b>Evaluation of Inventoried Polygons.....</b>	<b>5</b>
<b>Big Belts Geographic Area.....</b>	<b>11</b>
Big Log Area (BB1).....	11
Hogback Area (BB2) .....	17
Trout Creek Area (BB3) .....	23
North Belts Area (BB4) .....	29
Bilk Mountain Area (BB5).....	35
Camas Creek Area (BB6) .....	41
Mount Baldy Area (BB7) .....	46
Grassy Mountain Area (BB8).....	52
Willow Creek Area (BB11).....	57
<b>Castles Geographic Area .....</b>	<b>62</b>
Wapiti Peak Area (CA1).....	62
Whetstone Ridge Area (CA3) .....	68
<b>Crazies Geographic Area .....</b>	<b>74</b>
Loco Mountain Area (CR1).....	74
Bald Ridge Area (CR3) .....	80
<b>Divide Geographic Area .....</b>	<b>86</b>
Sweeney Creek Area (D2) .....	86
Blackfoot Meadows Area (D3) .....	92
Colorado Mountain Area (D5).....	98
Continental Divide North Area (D13).....	104
<b>Elkhorns Geographic Area.....</b>	<b>110</b>
Eagle Basin Area (E1) .....	110
Elkhorn Peak Area (E3).....	116
<b>Highwoods Geographic Area.....</b>	<b>122</b>
Highwood Baldy Area (H1).....	122
Arrow Prospect Area (H2) .....	128
<b>Little Belts Geographic Area.....</b>	<b>134</b>
Deep Creek Area (LB1) .....	134
Big Horn Thunder Area (LB2) .....	140
Sun Mountain Area (LB3).....	146
McGee Sawmill Area (LB4).....	152
Peterson Mountain Area (LB5) .....	158

Taylor Mountain Area (LB6) .....	163
Big Baldy Area (LB8) .....	169
Eagle Creek Area (LB10) .....	175
Calf Creek Area (LB11) .....	180
North Fork Smith Area (LB15) .....	186
Middle Fork Judith Area (LB16) .....	191
East Little Belts Area (LB18) .....	197
<b>Rocky Mountain Range Geographic Area .....</b>	<b>203</b>
Badger Two Medicine Area (RM1) .....	203
Teton Blackleaf Area (RM2) .....	209
Sun Canyon Willow Area (RM3) .....	215
Sawtooth Ridge Area (RM4) .....	221
Elk Smith Area (RM5) .....	227
<b>Snowies Geographic Area .....</b>	<b>233</b>
Big Snowies Area (S1) .....	233
<b>Upper Blackfoot Geographic Area .....</b>	<b>239</b>
Dearborn Silverking Area (UB1) .....	239
Stonewall Area (UB2) .....	246
Black Mountain Area (UB3) .....	252
Anaconda Hill Area (UB4) .....	258
Paige Gulch Area (UB5) .....	264
Bear Gulch Area (UB9) .....	270
Nevada Mountain Area (UB10) .....	276

## Abbreviations

BLM	Bureau of Land Management
CDNST	Continental Divide National Scenic Trail
ESA	Endangered Species Act
FS	Forest Service
FSR	forest system road
GOTM	Gates of the Mountains Wilderness
HLC NF	Helena-Lewis and Clark National Forest
IRA	inventoried roadless area
NCDE	Northern Continental Divide Ecosystem
NF	National Forest
NFS	National Forest System
OHV	off-highway vehicle
RNA	research natural area
ROW	right-of-way
TH	trailhead
WCC	watershed condition class (Class 1=Fully functioning, Class 2= Functioning at Risk, Class 3=Impaired)
WCT	westslope cutthroat trout
WMA	wildlife management area
WQ	water quality
WSR	wild and scenic river

## Introduction

In developing a proposed new plan or proposed plan revision, the responsible official shall “identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System (NWPS) and determine whether to recommend to the Chief of the Forest Service (FS) any such lands for wilderness designation” (Forest Service Land Management Planning Handbook 1909.12).

Please see associated maps for detailed information.

## Wilderness Evaluation Process Overview

The process by which lands are recommended for inclusion in the NWPS is intended to be transparent and consistent across the National Forest System (NFS). To accomplish this, the process is designed to occur in the following four primary steps (2012 Forest Service Planning Rule and Chapter 70 of the Forest Service Land Management Planning Handbook 1909.12.):

1. The Responsible Official (the Forest Supervisor) shall identify and create an inventory of all lands that may be suitable for inclusion in the NWPS.
2. The Responsible Official shall evaluate the wilderness characteristics of lands identified in the inventory using a set of criteria based on the Wilderness Act of 1964 and informed by the Eastern Wilderness Act of 1975.
3. The Responsible Official shall consider the areas evaluated and determine which areas to further analyze for recommendation as part of one or more alternative identified in a National Environmental Policy Act (NEPA) document.
4. The Responsible Official shall decide, based upon the analysis and input from Tribal, State, and local governments and the public, which areas, if any, to recommend for inclusion in the NWPS.

Each step of the process requires public participation and collaboration, intergovernmental coordination with state and local governments, and tribal consultation, as required by the broader planning process. Maps and documentation on the process are made available after each of the process steps to increase transparency and enable public participation, feedback, and input.

All plan revisions must complete this process before the responsible official determines, within the plan decision document, whether to recommend lands within the plan area to Congress for wilderness designation. Wilderness recommendations are only preliminary administrative recommendations; Congress has reserved the authority to make final decisions on wilderness designation.

## Wilderness Inventory

Using the assessment information as a base, a wilderness inventory was developed using both the size and the improvements criteria outlined in Chapter 70 of the 2015 Final Land Management Planning Directives, Forest Service Handbook 1909.12. The HLC NF identified 46 distinct areas that had potential for inclusion based off of this criteria. The wilderness evaluation inventory (WEI) process was completed on March 15, 2016 and made available for public review and comment.

## Public Comment to the Inventory

An informal public comment period was initiated for review of a number of resources including the wilderness inventory polygons, lands suitable for timber production, and the proposed desired conditions for the forest plan. A variety of forums were used to gather this public comment and review including comments gathered through a mapping tool on the web site, in-person community conversations/meetings, email responses, letters through postal mail, and through phone calls received.

The HLC NF received over 1300 distinct comments; 74% of all comments received referenced wilderness and the wilderness inventory polygons. Of those comments, 28% were supportive of additional recommended wilderness either in general or in specific areas and 60% were against additional wilderness, either in general or in specific areas. The remaining 12% of wilderness comments provided considerations but were not necessarily entirely supportive or against recommended wilderness generally or in specific areas. About 19% of the wilderness-related comments suggested that no additional wilderness be recommended anywhere on the HLC NF.

The following table summarizes the specific comments received on the wilderness inventory polygons.

**Table 1. Summary of public comment on wilderness inventory polygons**

Geographic Area	WEI Name	WEI #	Acres	Summary of Public Comments <sup>1</sup>
Big Belts	Big Log	BB1	10,254	Most comments were in favor of RW b/c it's contiguous to GOTM.
	Hogback	BB2	5,784	Most comments were against RW. Most would like to see it open to non-motorized travel.
	Trout Creek	BB3	39,383	Many comments asking to leave this area open to motorized and non-motorized travel. Not many comments in favor of RW.
	North Belts	BB4	14,140	Many comments asking to leave this area open to motorized and non-motorized travel. Not many comments in favor of RW.
	Bilk Mountain	BB5	25,787	Many comments asking to leave this area open to motorized and non-motorized travel. Not many comments in favor of RW.
	Camas Creek	BB6	23,878	A mix of comments in favor of and against RW.
	Mount Baldy	BB7	18,335	Many comments in favor of RW. A few comments against RW noting comm. tower, previous harvests and the Needles rock climbing area.
	Grassy Mountain	BB8	6,194	Many comments against RW due to roads and trails and noticeable human impacts.
Castles	Wapiti Peak	CA1	33,002	Most comments against RW due to mining claims, rock climbing, and motorized usage.
	Whetstone Ridge	CA3	8,676	All comments against RW.
Crazies	Loco Mountain	CR1	25,605	Many comments in favor of RW, a few against.
	Bald Ridge	CR3	13,210	Most comments against RW, should continue to manage for non-motorized recreation.
Divide	Sweeney Creek	D2	7,978	Many comments against RW b/c of heavy biking use and motorized use. Some comments requesting a designated rec.

Geographic Area	WEI Name	WEI #	Acres	Summary of Public Comments <sup>1</sup>
				area. Some comments for CDNST protection.
	Blackfoot Meadows	D3	29,066	A mix of comments in favor of and against RW.
	Colorado Mountain	D5	8,168	A mix of comments in favor of and against RW. Several comments specific to Lazyman IRA as RW.
	Continental Divide North	D13	4,173	Many comments against RW b/c of heavy biking use. Several comments on value of wildlife corridor.
Elkhorns	Eagle Basin	E1	57,279	Most comments for keeping WMU status. A few for RW and a few against.
	Elkhorn Peak	E3	15,180	Most comments for keeping WMU status. A few for RW and a few against.
Highwoods	Highwood Baldy	H1	15,824	Majority of comments are against any RW. Keep accessible to motorized and non-motorized.
	Arrow Prospect	H2	26,210	Majority of comments are against any RW. Keep accessible to motorized and non-motorized.
Little Belts	Deep Creek	LB1	89,321	A mix of comments in favor of and against RW. Deep Creek and Tenderfoot recognized as WCT fisheries and other wilderness values, but mountain bikers also value the area.
	Big Horn Thunder	LB2	45,334	Majority of comments are against any RW. Keep accessible to motorized and non-motorized. Support for Pilgrim Creek as wilderness or non-motorized.
	Sun Mountain	LB3	7,965	Majority of comments are against any RW. Keep accessible to motorized and non-motorized.
	McGee Sawmill	LB4	8,355	A mix of comments in favor of and against RW. Sawmill, Granite and TW IRAs suggested as RW or non-motorized.
	Peterson Mountain	LB5	6,839	A mix of comments in favor of and against RW. Sawmill, Granite and TW IRAs suggested as RW or non-motorized.
	Taylor Mountain	LB6	11,374	A mix of comments in favor of and against RW. Sawmill, Granite and TW IRAs suggested as RW or non-motorized.
	Big Baldy	LB8	49,068	Most comments against RW, should continue to manage for non-motorized recreation and/or multiple use.
	Eagle Creek	LB10	6,337	Most comments against RW, should continue to manage for non-motorized recreation and/or multiple use.
	Calf Creek	LB11	12,598	Majority of comments are against any RW. Keep accessible to motorized and non-motorized.
	North Fork Smith	LB15	9,817	A mix of comments in favor of and against RW.
	Middle Fork Judith	LB16	98,312	A mix of comments in favor of and against RW.
	East Little Belts	LB18	106,178	Majority of comments are against any RW. Keep accessible to motorized and non-motorized.
Rocky Mountain Range	Badger Two Medicine	RM1	125,795	A mix of comments in favor of and against RW. Many mention importance of B2M area culturally.
	Teton Blackleaf	RM2	56,002	Majority of comments are against any RW. Part of CMA, keep accessible to motorized and non-motorized.
	Sun Canyon Willow	RM3	71,106	Majority of comments are against any RW. Part of CMA, keep accessible to motorized and non-motorized.
	Sawtooth	RM4		Majority of comments are against any RW. Part of CMA, keep

Geographic Area	WEI Name	WEI #	Acres	Summary of Public Comments <sup>1</sup>
	Ridge		15,312	accessible to motorized and non-motorized.
	Elk Smith	RM5	30,030	Majority of comments are against any RW. Part of CMA, keep accessible to motorized and non-motorized.
Snowies	Big Snowies	S1	103,480	A mix of comments in favor of and against RW. Many comments regarding mountain biking and other recreation.
Upper Blackfoot	Dearborn Silverking	UB1	44,141	A mix of comments in favor of and against RW. Many comments regarding mountain biking and other recreation.
	Stonewall	UB2a UB2b	30,046	A mix of comments in favor of and against RW. Many comments regarding mountain biking and other recreation.
	Black Mountain	UB3	10,220	Majority of comments are against any RW.
	Anaconda Hill	UB4	21,539	Majority of comments are against any RW. Many comments regarding mountain biking and other recreation.
	Paige Gulch	UB5	17,569	Majority of comments are against any RW. Many comments regarding mountain biking and other recreation.
	Bear Gulch	UB9	5,636	Only a few comments on this polygon, split on favorability as RW. Suggestion to combine with UB10.
	Nevada Mountain	UB10	51,027	Majority of comments are in favor of this area as RW, and having high fish and wildlife values. However, mountain bikers use this area and would like to keep it non-motorized.

## Summary of Wilderness Recommendations for the Proposed Action

Based on the evaluation and input from public participation, the HLC NF identified nine areas to be carried forward into the proposed action as recommended wilderness areas. Not all lands included in the inventory and subsequent evaluation are required to be carried forward in the proposed action or an alternative. Information on why inventory polygons may/may not have been carried forward may be found in the following section.

**Table 2. Wilderness recommendations**

GA	WEI Name	WEI #	Acres	Recommendation Notes
Big Belts	Big Log	BB1/BB11	10,254	Previously recommended. Adjacent to Gates of the Mountains Wilderness.
	Mount Baldy	BB7	18,335	Previously Recommended. Expanded to include area w/n IRA.
Divide	Blackfoot Meadows	D3	29,066	Previously Recommended. Opportunities for solitude.
Little Belts	Deep Creek	LB1	14,544	Remote with excellent opportunities for solitude.
Snowies	Big Snowies	S1	103,480	Much of the area remote with excellent opportunities for solitude.
Upper Blackfoot	Dearborn Silverking	UB1	44,141	Adjacent to Scapegoat Wilderness.
	Red Mountain	UB2a	1,901	Adjacent to Scapegoat Wilderness.
	Arrastra Creek	UB2b	8,487	Adjacent to Scapegoat Wilderness.
	Nevada Mountain	UB10	51,027	Good opportunities for solitude in core area.



## Evaluation of Inventoried Polygons

As per the guidelines provided in the Final 2012 planning rule, all of the areas identified in the inventory were evaluated based on their potential to meet certain wilderness criteria. There were 46 separate areas identified in the inventory and evaluated as per the directives. Each GA was evaluated using criteria from Forest Service Handbook (FSH) 1909.12, chapter 70. The evaluation of each of these polygons is provided below. Following the table, each GA is described in detail, including the criteria that were used, and the results.

**Table 3. Summary of wilderness evaluation with recommendations**

GA	WEI Name	WEI #	Acres	Notes	Recommendation and Rationale
Big Belts	Big Log	BB1	10,254	Adjacent to Gates of the Mountain Wilderness. Functioning mature ponderosa pine that supports flammulated owls; introduced mountain goat population. No motorized use within polygon. Was recommended in the 1986 Plan. Eastern portion along Missouri River has been identified as Missouri River Corridor Special area.	Recommended with modifications – see map. Rationale: Previously recommended and adjacent to existing wilderness
	Hogback	BB2	5,784	Steep, rocky, and inaccessible. Good functioning wildlife habitat but better when combined with other polygons in the area. Nonmotorized polygon - opportunities for solitude and unconfined recreation good, but a lot of use along Beaver Creek.	Not recommended Rationale: Motorized system roads and trails are present and affect opportunities for solitude.
	Trout Creek	BB3	39,383	Many motorized trails, both summer and winter throughout southern portion of the polygon. Good functioning wildlife habitat but better when combined with other polygons in the area. Mountain bike use in Trout Creek and Bear Trap.	Not recommended Rationale: Motorized system roads and trails are present and affect opportunities for solitude.
	North Belts	BB4	14,140	Many motorized trails, both summer and winter, throughout the polygon. Likely Townsend's big eared bat breeding area. Unique rock formations in Hellgate. Unique opportunities for cultural research.	Not recommended Rationale: Motorized system roads and trails are present and affect opportunities for solitude.
	Bilk Mountain	BB5	25,787	Some motorized opportunities; some non-motorized as well. Surrounded by open roads. Has private land inholding. Confederate Historic Mining District within polygon.	Not recommended. Rationale: Motorized system roads and trails are present and affect opportunities for solitude.
	Camas Creek	BB6	23,878	Lots of opportunity for primitive and unconfined recreation. No motorized uses in either summer or winter. Extensive and good wolverine habitat. Confederate Historic Mining District within polygon.	Not recommended Rationale: FS maintains the ability to carry out other resource management that would be inconsistent with wilderness characteristics.
	Mount Baldy	BB7		Lots of opportunity for primitive and unconfined recreation. No motorized	Recommended with modifications –

GA	WEI Name	WEI #	Acres	Notes	Recommendation and Rationale
			18,335	uses in either summer or winter. Extensive and good wolverine habitat. Was recommended in the 1986 Plan.	see map. Rationale: Previously recommended, expanded to include a larger area within the IRA boundary.
	Grassy Mountain	BB8	6,194	Effects to solitude from activities around Highway 12. No resources stand out.	Not recommended Rationale: Effects to solitude from activities around Highway 12 and adjacent subdivision.
	Willow Creek	BB11	121	Four small parcels adjacent to the northern boundary of the Gates of the Mountains Wilderness. No motorized use within polygon and excellent opportunities for solitude and unconfined recreation.	Recommend Rationale: Adjacent to existing Gates of the Mountains Wilderness, combine with BB1.
Castles	Wapiti Peak	CA1	33,002	Motorized trails affect solitude and opportunities for primitive and semi-primitive nonmotorized recreation. Willow Creek is municipal watershed for White Sulphur Springs. No other resources stand out.	Not recommended. Rationale: Motorized trails affect solitude and opportunities for primitive and semi-primitive nonmotorized recreation.
	Whetstone Ridge	CA3	8,676	Motorized trails/activity affect solitude and opportunities for primitive and semi-primitive nonmotorized in both summer and winter. Important grassland bird habitat and elk winter range and connected to those habitats on non-FS lands.	Not recommended. Rationale: Motorized trails/activity affect solitude and opportunities for primitive and semi-primitive nonmotorized in both summer and winter.
Crazies	Loco Mountain	CR1	25,605	Wolverine in high mountain areas. Checkerboard ownership surrounding polygon with limited access.	Not recommended. Rationale: Checkerboard ownership and adjacent private lands affect ability to manage as wilderness and limit public access.
	Bald Ridge	CR3	13,210	Motorized trails/activity affect solitude and opportunities for primitive and semi-primitive nonmotorized in both summer and winter. Important elk and mule deer winter habitat.	Not recommended. Rationale: Motorized trails/activity affect solitude and opportunities for primitive and semi-primitive nonmotorized in both summer and winter.
Divide	Sweeney Creek	D2	7,978	Flammulated owl breeding habitat. Nonmotorized within the polygon in both summer and winter. However, motorized activity outside of the polygon affects solitude. Old historic Mullan road and a small piece of the CDNST present.	Not recommended. Rationale: Motorized activity outside of the polygon affects solitude

GA	WEI Name	WEI #	Acres	Notes	Recommendation and Rationale
	Blackfoot Meadows	D3	29,066	Portion was recommended in the 1986 plan and was known as Electric Peak. Historic mining evidence throughout. Westslope cutthroat trout habitat throughout and potentially bull trout as well. CDNST makes up the southeastern boundary. Beaverhead-Deerlodge NF section along the border of the polygon is mapped as Electric Peak Recommended Wilderness Area in their forest plan.	Recommended with modifications – see map. Rationale: Previously recommended. Opportunities for solitude.
	Colorado Mountain	D5	8,168	Red Mountain Flume part of the municipal water system for Helena. Historic mining and superfund site to west. Flammulated owl habitat and important for general wildlife connectivity.	Not recommended. Rationale: Proximity to private lands and large population center affect opportunities for solitude. FS maintains the ability to carry out other resource management that would be inconsistent with wilderness characteristics
	Continental Divide North	D13	4,173	Flammulated owl breed and wildlife connectivity. CDNST trail bisects it. Communication sites, shooting range, Highway 12, Priest Pass road, and groomed snowmobile trails affect solitude in entire polygon.	Not recommended. Rationale: Affects to wilderness solitude from communication sites, shooting range, Highway 12, Priest Pass road, and groomed snowmobile trails.
Elkhorns	Eagle Basin	E1	57,279	Recognized as a Wildlife Management Unit. Large amount of secure elk habitat. Largely nonmotorized within the polygon.	Not recommended. Rationale: Maintain as wildlife management unit.
	Elkhorn Peak	E3	15,180	Recognized as a Wildlife Management Unit. Year- round motorized trails in southern portion of polygon. Large amount of secure elk habitat in northern portion of the polygon.	Not recommended. Rationale: Maintain as wildlife management unit.
Highwood	Highwood Baldy	H1	15,824	Largely inaccessible due to steepness and lack of access through large ranches. Lots of internal activity due to the Highwood Baldy electronic site.	Not recommended. Rationale: Wilderness characteristics affected by electronics site and adjacent private lands. Lack of public access.
	Arrow Prospect	H2	26,210	Better access due to the North Fork Highwood Creek Trailhead. Dominated by motorized trails in summer. Snowmobiling allowed in winter. Grazing infrastructure. Important westslope cutthroat trout habitat.	Not recommended. Rationale: Motorized trails in summer and winter affect solitude experience.
Little Belts	Deep Creek	LB1	89,321	Tenderfoot Creek has important fishery, provides solitude, and has waterfalls. Motorcycle and ATV trails dominate northern portion of polygon. Smith River corridor provides cultural, scenic, wildlife, and recreational values.	14,500 acres of North of Deep Creek Park is recommended – see map. Rationale: Only part of the inventoried parcel that doesn't have motorized

GA	WEI Name	WEI #	Acres	Notes	Recommendation and Rationale
					uses. Remaining portions of parcel that do have motorized uses were excluded from recommendation.
	Big Horn Thunder	LB2	45,334	Large portion of area has opportunities for solitude but is bisected by a motorized trail.	Not recommended. Rationale: Motorized use affects solitude.
	Sun Mountain	LB3	7,965	Nonmotorized in both summer and winter. However, open motorized roads, residential areas, and recreation areas surrounding impact solitude.	Not recommended. Rationale: Open motorized roads, residential areas, and recreation areas surrounding impact solitude.
	McGee Sawmill	LB4	8,355	Opportunities for solitude away from the Dry Fork Belt Creek road. Mule deer and westslope cutthroat trout habitats.	Not recommended. Rationale: Dry Fork Belt Creek road affects solitude.
	Peterson Mountain	LB5	6,839	Good opportunities for solitude even though are surrounded by private lands. Mule deer and westslope cutthroat trout habitat. Remote but small.	Not recommended. Rationale: Activities on surrounding private land affect opportunities for solitude.
	Taylor Mountain	LB6	11,374	Good opportunities for solitude even though surrounded by private lands.	Not recommended. Rationale: Activities on surrounding private land affect opportunities for solitude.
	Big Baldy	LB8	49,068	Important habitat for alpine species such as black rosy finch, pika, and wolverine. Townsend's big eared bat in eastern portion of polygon. Westslope cutthroat trout habitat throughout. Motorized use throughout limits opportunities for solitude.	Not recommended. Rationale: Motorized use throughout limits opportunities for solitude, plus impacts from historic mining.
	Eagle Creek	LB10	6,337	Good solitude in summer. Snowmobiling allowed in winter. Good elk calving habitat.	Not recommended. Rationale: Adjacent private land and checkerboard ownership. Motorized routes affect opportunities for solitude.
	Calf Creek	LB11	12,598	Motorized trails and snowmobiling limit opportunities for solitude. Documented wolverine sightings. Good elk calving habitat.	Not recommended. Rationale: Motorized trails and snowmobiling limit opportunities for solitude.
	North Fork Smith	LB15	9,817	No summer motorized trails but open for snowmobile in winter. Ant Park Warming Hut. Wolverine potential. Elk winter range and calving habitat.	Not recommended. Rationale: Surrounding motorized use and winter motorized access limit

GA	WEI Name	WEI #	Acres	Notes	Recommendation and Rationale
					opportunities for solitude.
	Middle Fork Judith	LB16	98,312	Middle Fork WSA is core of the polygon. Motorized trails to the north and east. Rest of polygon nonmotorized. Private land inholdings accessed by open road impact solitude. Black rosy finches and wolverine habitat. Elk calving habitat and old growth in south half of polygon. Westslope cutthroat trout throughout.	Not recommended. Rationale: Motorized trails to the north and east and private land inholdings accessed by open road impact solitude.
	East Little Belts	LB18	106,178	Interesting geologic features in Daisy Notch, Morrisy Narrows, Haymaker Narrows, Nevada Narrows, and Daisy Narrows. Area dominated by motorized trails.	Not recommended. Rationale: Motorized trails affect opportunities for solitude.
Rocky Mountain Range	Badger Two Medicine	RM1	125,795	Adjacent to Bob Marshall Wilderness Complex. Excellent solitude in both summer and winter. High wildlife values. High fisheries values. Cultural significance everywhere. Outstanding landscape features in most of drainages.	Not recommended. Rationale: Existing Blackfeet Nation reserved rights may conflict with wilderness characteristics.
	Teton Blackleaf	RM2	56,002	Adjacent to Bob Marshall Wilderness Complex. Cherry stem roads along North Fork and South Fork Teton rivers bisect polygon. Snowmobiling allowed on open roads. Snow play area in Waldron Creek. Solitude is affected by open roads and snow play area but northern portion of the polygon not impacted by motorized travel. High wildlife values. High fisheries values. Cultural significance everywhere. Area is designated as Conservation Management Area.	Not recommended. Rationale: Solitude is affected by open roads and snow play area. Area is designated as Conservation Management Area.
	Sun Canyon Willow	RM3	71,106	Adjacent to the Bob Marshall Wilderness Complex. Activities along the Sun Canyon Road, Beaver Willow Road, Benchmark Road Area, and Mortimer Gulch area affect solitude along the edges of the polygon. Areas next to wilderness boundary high potential for primitive and semi-primitive non-motorized recreation. World class big horn sheep habitat and important big game winter range. Adjacent to the Sun River Wildlife Management Area. Area designated as a Conservation Management Area.	Not recommended. Rationale: Activities along the Sun Canyon Road, Beaver Willow Road, Benchmark Road Area, and Mortimer Gulch area affect solitude along the edges of the polygon. Area is designated as Conservation Management Area.
	Sawtooth Ridge	RM4	15,312	Not adjacent to Bob Marshall Wilderness Complex. Effects to solitude from Sun Canyon and Beaver Willow roads. Adjacent to Sun River Wildlife Management Area. Area designated as a Conservation Management Area.	Not recommended. Rationale: Effects to solitude from Sun Canyon and Beaver Willow roads. Area is designated as Conservation Management Area.
	Elk Smith	RM5	30,030	Adjacent to Bob Marshall Wilderness Complex. Motorcycle trails in Petty Crown and Elk Creek/Bailey Basin areas. Snowmobiling allowed along Benchmark road. Motorized activities affect solitude in these area. Area designated as Conservation Management Area.	Not recommended. Rationale: Motorized activities affect solitude in these area. Area is designated as Conservation Management Area.

GA	WEI Name	WEI #	Acres	Notes	Recommendation and Rationale
Snowies	Big Snowies	S1	103,480	Big Snowy Mountain wilderness study area. Northern ¾ of the polygon nonmotorized. Snowmobiling permitted on west end. Good opportunities for solitude. Unique geology. Wolverine, peregrine and wild turkey habitat. Westslope cutthroat trout habitat.	Recommended with modifications – see map. Rationale: Remote and has excellent opportunities for solitude.
Upper Blackfoot	Dearborn Silverking	UB1	44,141	Extends into Rocky Mtn. Range GA to north. Adjacent to Scapegoat Wilderness. Polygon nonmotorized – good opportunities for solitude. Within lynx critical habitat and existing grizzly bear recovery area and proposed primary conservation area. Alice Creek Road open to motorized use in both summer and winter. Many cultural sites in area. Area of polygon in the Rocky Mtn. Range GA designated as a Conservation Management Area.	Recommended with modifications – see map. (Northern portion part of CMA not recommended for wilderness.) Rationale: Adjacent to Scapegoat Wilderness.
	Stonewall	UB2a UB2b	30,046	Adjacent to Scapegoat Wilderness on the north. Good wolverine habitat. Within lynx critical habitat and existing grizzly bear recovery area and proposed primary conservation area. Motorized trails and snowmobiles on Stonewall Mountain and in Copper Bowls area impact solitude. Beaver Creek road and Copper Creek roads open year round.	UB2a Red Mountain recommended. UB2b Arrastra recommended. Rationale: Adjacent to Scapegoat Wilderness.
	Black Mountain	UB3	10,220	No constructed trails in polygon. Cross country snowmobiling allowed - limiting winter solitude opportunities. Important for wildlife connectivity through the greater landscape.	Not recommended. Rationale: Open to snowmobiles, limits opportunities for solitude.
	Anaconda Hill	UB4	21,539	CDNST bisects polygon. No motorized trails within polygon. Cross country snowmobiling allowed away from the CDNST. Highways 200 and 279 impact solitude. Important for wildlife connectivity through the greater landscape.	Not recommended. Rationale: Motorized uses near the polygon impact opportunities for solitude.
	Paige Gulch	UB5	17,569	CDNST bisects the polygon. Motorized portion of the CDNST. Cross country snowmobiling allowed north of the CDNST; not allowed south of the CDNST. Motorized uses affect solitude.	Not recommended. Rationale: Motorized uses impact opportunities for solitude.
	Bear Gulch	UB9	5,636	Helmville-Gould trail is motorized and cross country snowmobile travel allowed in winter – affect solitude. Westslope cutthroat trout habitat in area. String of patented mining claims separate it from UB10.	Not recommended. Rationale: Motorized uses and patented mining claims affect solitude.
	Nevada Mountain	UB10	51,027	Large landscape - center primarily nonmotorized. Cross country snowmobiling not allowed in entire polygon. Opportunities for solitude in core area are good. CDNST bisects the area. Part of CDNST is motorized. High wildlife diversity high and important for connectivity within greater landscape. Many known unpatented claims with pre-existing rights within polygon.	Recommended with modifications – see map. Rationale: Opportunities for solitude in core area are good. Large parcel shared with Divide GA.

## Big Belts Geographic Area

### Big Log Area (BB1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 4. Plant and animal communities**

<b>Plant and Animal Communities</b>	<b>Composition</b>
Existing vegetation dominance types	Over 35% of this area is dominated by dry grasslands, and over 22% has a ponderosa pine dominance type. Roughly 23% is dominated by Douglas-fir. Shrublands make up another 12%, and just over 5% is considered transitional (no vegetation type identified) due to recent wildfires. There are small or trace amounts of other dominance types present, including lodgepole pine, limber pine, and Rocky mountain juniper.
Potential vegetation types	This area is dominated by warm dry forest potential vegetation types (51%). Dry grassland potential types are also common, representing over 34%. Small amounts of other potential vegetation types are present, including cool moist forest, mesic grasslands, shrublands, riparian, and sparsely vegetated (cliffy) areas.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 1,226 acres within BB1 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitats: 75 acres potential lynx habitat (52 acres of mature multi-storied, which is optimal winter foraging habitat; note area not currently occupied by lynx) and 2600 acres of goshawk potential nesting habitat. Clark's nutcracker presence indicates mature whitebark, ponderosa, and/or limber pine; flammulated owl and Lewis's woodpecker presence indicate mature, open ponderosa pine.</li> <li>• Big game: Over 5000 acres secure elk summer habitat. Possible moose presence in riparian</li> <li>• Note that these habitats increase in extent and value in combination with similar in BB2 and BB3.</li> <li>• No WCT.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. Occasional European starling, likely near perimeter of area.  No known aquatic species, possibly non-native trout.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 5. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past timber harvest in this area.
% of area without known invasive weeds	According to data as of 2/10/2016, 88% of BB1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%, no impacts within the polygon
Miles of motorized road/trail within 300' of streams	1.15 miles (southwest side of polygon, along intermittent stream)
Noticeable wildfire suppression impacts	Meriwether Fire (2007): dozer lines still visible in Hunter's Gulch and Bear's Gulch.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 6. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	Approximately 2% of the area has been influenced by prescribed fire treatments, which were determined not to be substantially noticeable because they appear similar to natural wildfire effects. The activities that occurred included broadcast burning, pile burning, and under burning from 1993 to 2009.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Hogback repeater is visible from within the polygon.
Areas of mining activities including both abandoned and active mines.	None present.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data, there are no existing fences within B1.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed recreation sites located within the Missouri River corridor and throughout Big Log drainage.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Power and gas lines along Beaver Creek Road and the northeastern boundary of the polygon. These are not located in the polygon but visible from within it.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.



Improvement Type	Presence and extent of departure from naturalness
Lands adjacent to development or activities that impact opportunities for solitude.	American Bar Subdivision along western boundary of the polygon. Very active river corridor with recreation activities. Minimal developments on private lands along Beaver Creek Road.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Thirty-three recorded cultural resources, including one listing historic landscape. The sites range from occupational cabin ruins, tipi ring, mining and prehistoric rock art sites.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Recommended as wilderness in the Helena NF 1986 Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No historic roads recorded, however their presence is highly likely.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 7. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Summer motorized activities are concentrated in the Missouri River corridor.
Area available for winter motorized opportunity	No current motorized winter activity.
Proximity to private lands and non-Forest Service roads.	None present.
Proximity to developed recreation sites outside of the polygon area.	Refrigerator Canyon TH, Hunters Gulch TH, Big Log TH, and Missouri River Canyon TH. These THs have minimal effect on the solitude within the polygon. Coulter Campground and Meriwether Picnic Site are located along the Missouri River corridor. These sites have boat access only which creates a moderate feeling of solitude due to the sounds of boat motors. Mann Gulch Historic Landscape is located within the polygon has minimal impact to solitude.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 8. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation	Except for the river corridor, which is semi-primitive motorized, the entire polygon is open for primitive and unconfined recreation.
Primitive and semi-primitive non-motorized winter recreation	Entire polygon is open for primitive and unconfined recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, horseback riding, cross country skiing, and dispersed camping.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 9. Size and Description**

Size of Polygon	Description
10,254 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 10. Features present**

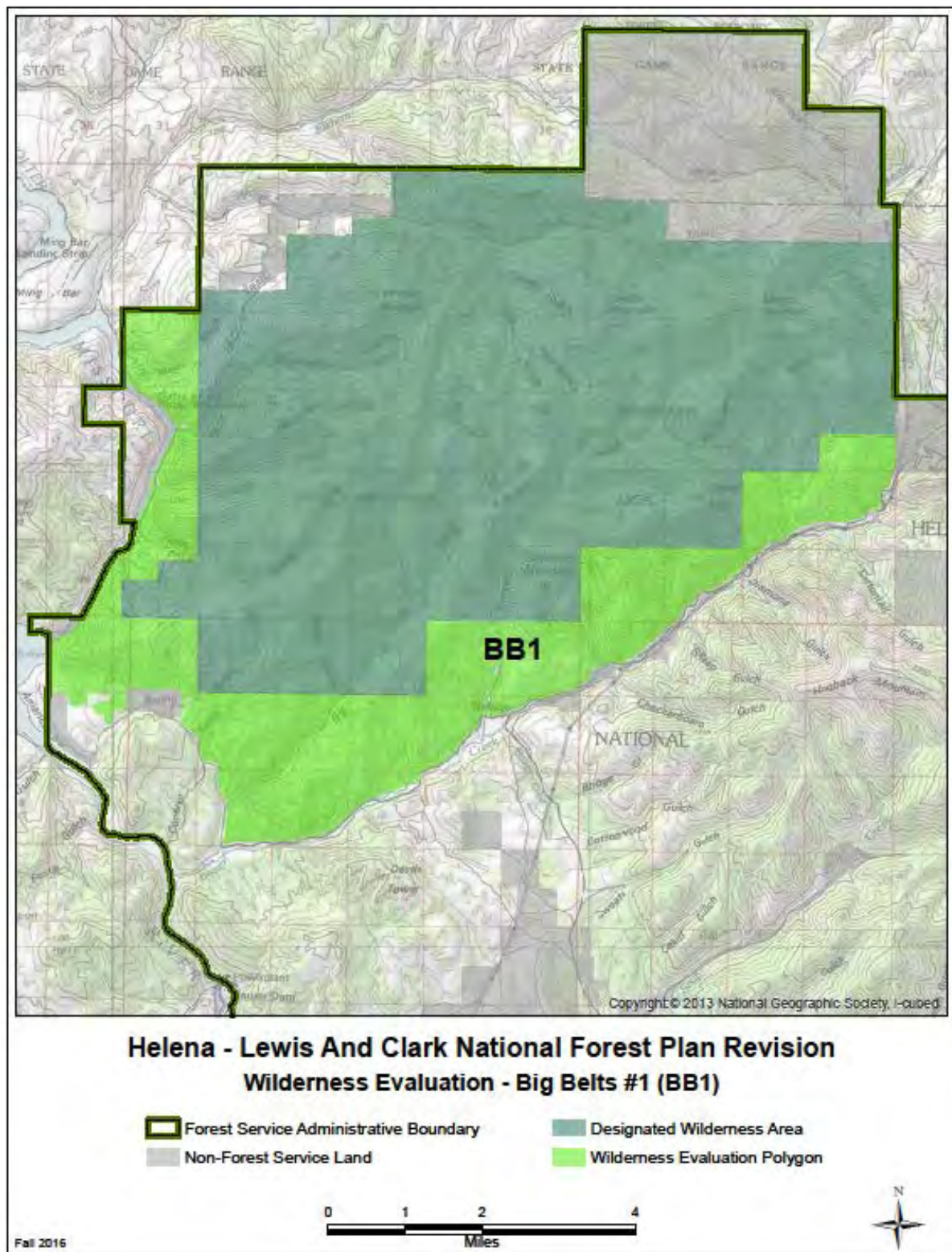
Features	Description and scale
Rare plant communities	There are known occurrences of several potential plant species of conservation concern in this area, including <i>Astragalus convallarius</i> , <i>Polygonum douglasii</i> spp. <i>Austinae</i> ; <i>Lesquerella klausii</i> , and <i>Delphinium bicolor</i> spp. <i>Calcicola</i> . Limber pine, <i>Pinus flexilis</i> , is also present in trace amounts.
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: flammulated owl, Lewis's woodpecker. No rare aquatic species.
Rare ecosystems	Ponderosa pine forest is a community of interest for its wildlife value, and is well-represented in this area.
Outstanding landscape features	Cliffs and rock formations along the river corridor and Meriwether Canyon. Missouri River. Rock formations and slot canyon in Refrigerator Canyon.
Historic and cultural resource sites	Thirty-three recorded cultural resources, including one listing historic landscape. The sites range from occupational cabin ruins, tipi ring, mining and prehistoric rock art sites, which all offer scientific and educational value.
Research Natural Areas	None present.

Features	Description and scale
High quality water resources or important watershed features	Beaver Creek (on the boundary between BB1 and BB2) is on the list of eligible WSRs, it is listed for outstanding fishing, geology, and cultural resources.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 11. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	This polygon consists of a band of land between designated motorized routes and the Gates of the Mountains Wilderness boundary.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	No private land inholdings.
Management of adjacent lands	Designated wilderness immediately to the north and east of the polygon. Some small portions of private lands, primarily residential, to the south and southeast of the polygon. Devils Tower IRA on FS to the south. American Bar Subdivision to the south west. Missouri River corridor to the west.



## Hogback Area (BB2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 12. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Nearly 36% of this area is dominated by dry grassland. Another 30% supports subalpine fir/Engelmann spruce dominance types. 15% is dominated by Douglas-fir forest. Mesic shrubs are present on roughly 7%, and nearly 5% is considered sparsely vegetated. Very small amounts of other dominance types are present, including ponderosa pine, limber pine, cottonwood, and Rocky Mountain juniper.
Potential vegetation types	The area is dominated by warm dry forest potential vegetation types (78%). Based on the extent of grassland dominance types, some of this area is currently non-forested. Cool moist forest types are also represented (7%), as are dry grassland potential types (8%). Small amounts of mesic grassland, xeric shrub, riparian, and sparse potential vegetation types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 73 acres within BB2 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest: 2700 acres potential goshawk nesting habitat, 875 acres potential lynx habitat with roughly 431 in mature multi-storied structure which is optimal lynx winter foraging habitat (note area not currently occupied by lynx and not contiguous with occupied lynx habitat); . **Note that these habitats increase in extent and value in combination with similar in BB1 and BB3. *** Possibly limited areas (up to 150 acres) of old growth habitat.</li> <li>• Big game: 2800 acres secure elk habitat.</li> <li>• Subalpine/alpine habitats: 155 acres potential wolverine habitat.</li> <li>• No native aquatic species known.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. No aquatic species known.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 13. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in this area.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.7% of BB2 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%, impacts primarily occur outside of polygon

Measures	Outcome
Miles of motorized road/trail within 300' of streams	0.25 mile
Noticeable wildfire suppression impacts	Only 146 acres have had wildfire since 1980 and there are no noticeable impacts of fire suppression.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 14. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no substantially noticeable treatment activities in this area. There are no records of past harvest. Roughly 15% of the area, however, has been impacted by prescribed fire activities, including pile burning and under burning from 1980 to 1999. These treatments were associated with the Bull Sweats project and the effects appear similar to natural conditions.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Communication sites with antennae and buildings on Hogback Lookout. This site is located outside of the polygon but visible from within.
Areas of mining activities including both abandoned and active mines.	None present.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are no fences or water developments within BB2.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Large component of dispersed camping within northeast corner (Indian Flats). No outfitter camps.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Cleared powerline right of way along Sweats Gulch. Located outside of polygon by is visible from within.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Powerlines and gas lines along the Beaver Creek access road that are visible from the polygon. Private land residential developments along Beaver Creek.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Only one recorded cultural resource is known within this study area.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 plan.



Improvement Type	Presence and extent of departure from naturalness
Number of miles of maintenance level 1 road templates.	0.1 miles.
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 15. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	No summer motorized recreation opportunities.
Area available for winter motorized opportunity	Northern 1/3 of the polygon is available for motorized winter recreation (Indian Flats area).
Proximity to private lands and non-Forest Service roads.	No private land inholdings.
Proximity to developed recreation sites outside of the polygon area.	Indian Flats rental cabin is accessible by vehicle and snowmobile. Has moderate impacts to solitude. Refrigerator Canyon TH lies along Beaver Creek road and has minimal impacts to solitude of the BB2 polygon.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 16. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is open for primitive and unconfined recreation.
Primitive and semi-primitive non-motorized winter recreation.	Entire polygon is open for primitive and unconfined recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, horseback riding, cross country skiing, and dispersed camping.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 17. Size and Description**

Size of Polygon	Description
5,783 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 18. Features present**

Features	Description and scale
Rare plant communities	There are no records of rare plants or potential plant species of conservation concern in this area other than small amounts of limber pine ( <i>Pinus flexilis</i> ). Cottonwood is also present which is not common in general on NFS lands of the HLC NF.
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: none documented No known rare aquatic species
Rare ecosystems	Trace amounts of limber pine and cottonwood are present which are not abundant in many areas of the HLC NF. No rare aquatic ecosystems.
Outstanding landscape features	Steep and rugged. Beaver Creek canyon has unique rock formations and limestone cliffs. Views from Hogback lookout span the entire Helena valley.
Historic and cultural resource sites	Only one cultural resource with the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Beaver Creek (on the boundary between BB1 and BB2) is on the list of eligible WSRs, it is listed for outstanding fishing, geology, and cultural resources.

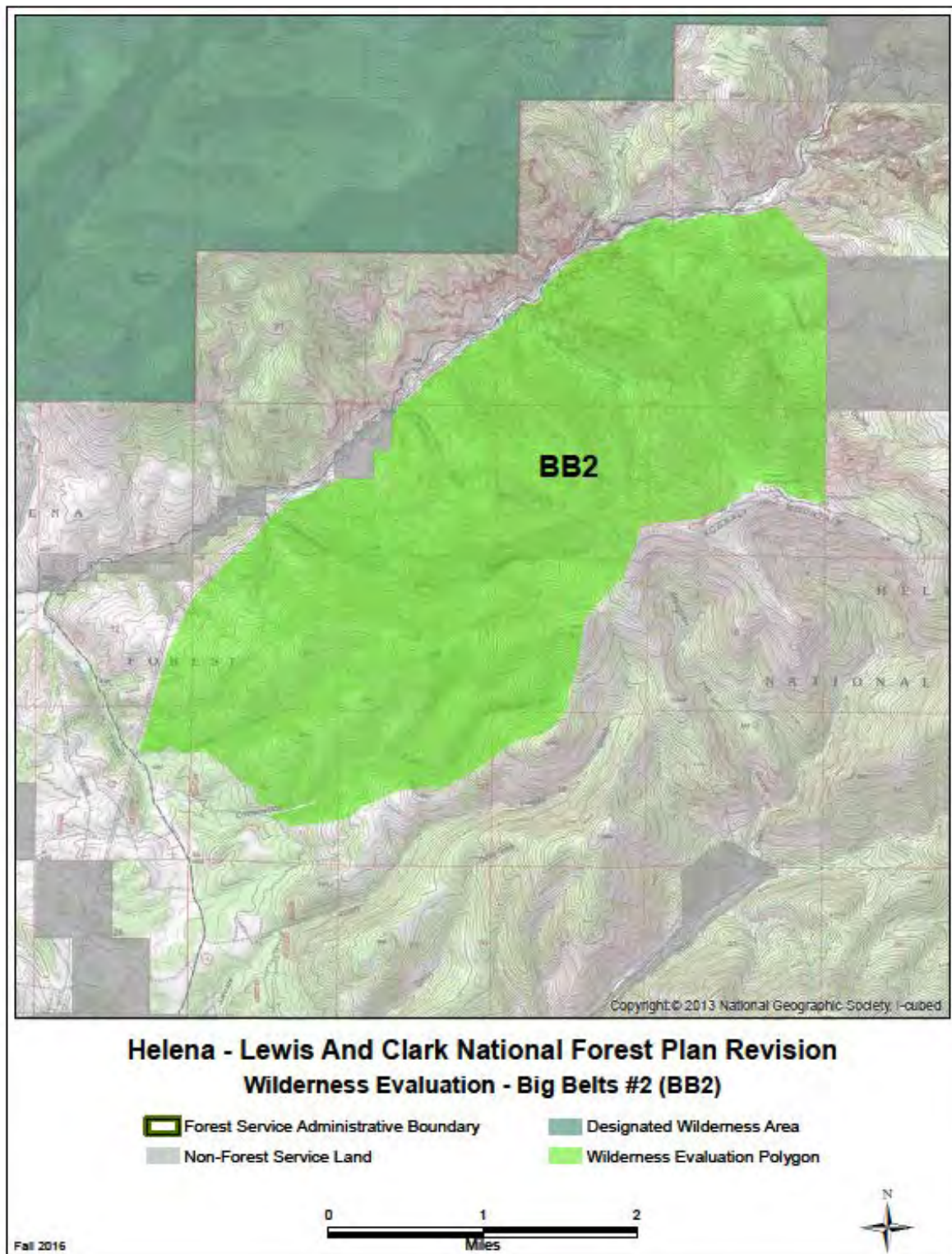
Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 19. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Long rectangular piece of land that extends from the Beaver Creek drainage up to the Hogback Ridge.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to	None known.



<b>Factors</b>	<b>Description and scale</b>
protect wilderness characteristics	
The presence and amount of non-Federal land in the area	No private inholdings.
Management of adjacent lands	Some small portions of private lands, primarily residential, to the north and east edges of the polygon. Forest Service system lands to the south and southeast. Old timber harvest on the southwest.



## Trout Creek Area (BB3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 20. Plant and animal communities**

<b>Plant and Animal Communities</b>	<b>Composition</b>
Existing vegetation dominance types	Most of this area (over 59%) supports Douglas-fir dominated forests. Ponderosa pine forest is also common (16%). Over 13% is made up of dry grasslands. Other dominance types are present in fairly small amounts, including shrublands, lodgepole pine, subalpine fir, Engelmann spruce, limber pine, cottonwood, aspen, and Rocky Mountain juniper. The Cave Gulch fire of 2000 burned the southern portion of this area; some of this area is still regenerating and/or was converted to grassland. Nearly 5% of the area overall is still considered transitional, where no vegetation type is yet identified post-disturbance.
Potential vegetation types	The area is strongly dominated by warm dry forest potential vegetation types (84%), with only 3% supporting cool moist forest types. Dry grassland potential vegetation types are also present (13%). Very small amounts of shrubland types exist.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 3,909 acres within BB3 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 2500 acres potential lynx habitat (1200 acres of mature multi-storied, which is optimal winter foraging habitat; but note that area not currently occupied by lynx). 22,000 acres of goshawk potential nesting habitat (3 known nesting territories). Likely flammulated owl nesting indicates presence of mature, open ponderosa pine. Up to 2000 acres of possible old growth habitat in patches of varying size.</li> <li>• Big game: Over 18,000 acres secure elk habitat. Possible moose presence in riparian.</li> <li>• Subalpine/alpine: Roughly 600 acres potential wolverine habitat, wolverine observed.</li> <li>• **Note that these habitats increase in extent and value in combination with similar in BB1 and BB2.**</li> <li>• WCT in Magpie Creek (on boundary of polygon).</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 21. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Over 99% of the area is unaffected by past harvest. Roughly 104 acres (less than 1% of the area) was harvested with a single tree selection cut; one area occurred in 1959 and the other in 1992.
% of area without known invasive weeds	According to data as of 2/10/2016, 90.1% of BB3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2:71%, Class 3:29%
Miles of motorized road/trail within 300' of streams	11.6 miles, concentrated in the southern portion of the polygon.
Noticeable wildfire suppression impacts	Cave Gulch (2000): Noticeable fire suppression evidence in Hedges Mountain, Magpie Creek, Trout Creek and Goodman Gulch. Jintown (2003): Noticeable fire suppression above the junction of Kingsberry and York gulches.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 22. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	No substantially noticeable treatments occur within the area. Less than 1% was affected by past timber harvest, as noted above. This partial cutting blends back into the landscape fairly quickly. Roughly 3% of the area has been impacted by prescribed fire treatments, including broadcast burning, pile burning, and under burning from the 1980's to early 2000's, the effects of which may appear similar to a wildfire.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Electronic sites on Hogback Lookout and repeater site on Mount Hedges are visible from locations within the polygon.
Areas of mining activities including both abandoned and active mines.	Some abandoned mines in the south end of the polygon in Never Sweat Gulch, Bar Gulch, Coxey Gulch, and Cave Gulch. Limited active mining in Kingsberry Gulch, outside of the polygon. Some active mining in Cave Gulch on private lands. These mines take away from the wilderness character of the south end of the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately ¼ mile of fencing within BB3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed camping in Trout Creek, some of which takes place within the polygon. Dispersed camping along Magpie on the southeastern boundary of the polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Powerlines along Trout Creek that lie outside of the polygon but are visible from within the polygon. Powerline that goes up to Hogback Lookout and communication site is visible from within the BB3 polygon.
Presence of watershed treatment areas including contouring, diking, and channeling.	Some ditching along Trout Creek that lie within the polygon.
Lands adjacent to development or activities that impact opportunities for solitude.	Community of York and residential areas up Trout Creek create moderate impacts to solitude. Seasonal motorized use in Middleman Mountain to the north of the polygon has moderate impacts to solitude and is very visible to locations within the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Thirty-five recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	0.9 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic roads are within this evaluation area, however there is high likelihood they are present on the landscape, due to the heavy historic mining in the area.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 23. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Lands south of Trout Creek to Magpie Creek is open to motorized uses with approximately 20 + miles of open designated motorized routes. Use of these trails is seasonal but sights and sounds of motorized use is very evident from within the polygon.
Area available for winter motorized opportunity	From Never Sweat Gulch to Magpie Meadows is open to winter motorized use. Magpie Road is a designated snowmobile route. Use of these routes and snowmobile areas are seasonal but sights and sounds of motorized use are evident from within the polygon.
Proximity to private lands and non-Forest Service roads.	Private lands along Cabin Gulch, Trout Creek, and Cave Gulch create minor impacts to solitude within the polygon.
Proximity to developed recreation sites	Cave Gulch and Never Sweat THs provide motorized access

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
outside of the polygon area.	and create moderate to high impacts to solitude. Trout Creek Canyon TH, Hanging Valley TH, Magpie Meadows TH are all nonmotorized trailheads and create minimal impacts to solitude. Vigilante Campground is located at the end of a paved road in Trout Creek and creates moderate impact to solitude. Bar Gulch rental cabin is located in Magpie Creek and creates minimal impact to solitude.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 24. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Opportunities for primitive recreation are better in the northern 1/3 of the polygon, northwest of Trout Creek and the lands surrounding Soup Creek. Upper Trout Creek has semi-primitive hiking opportunities in the summer. Hanging Valley trail is designated as a National Scenic Trail and is accessed from Magpie Meadows.
Primitive and semi-primitive non-motorized winter recreation.	Same as the areas described above for summer non-motorized areas.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Main recreation uses are OHV riding, snowmobiling, hiking, hunting, dispersed camping, Some cross country skiing in Trout Creek. Mountain biking in Trout Creek and Bear Trap.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 25. Size and Description**

Size of Polygon	Description
39,383 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 26. Features present**

Features	Description and scale
Rare plant communities	Several potential plant species of conservation concern occur in the area, including <i>Pinus flexilis</i> , <i>Astragalus convallarius</i> , <i>Polygonum douglasii</i> spp. <i>Austinae</i> , and <i>Lesquerella klausii</i> . Antelope bitterbrush ( <i>Purshia tridentata</i> ) and mountain mahogany ( <i>Cercocarpus ledifolius</i> ) also present which are not potential SCC's but are plants of interest for the HLC NF due to their limited extent.
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE

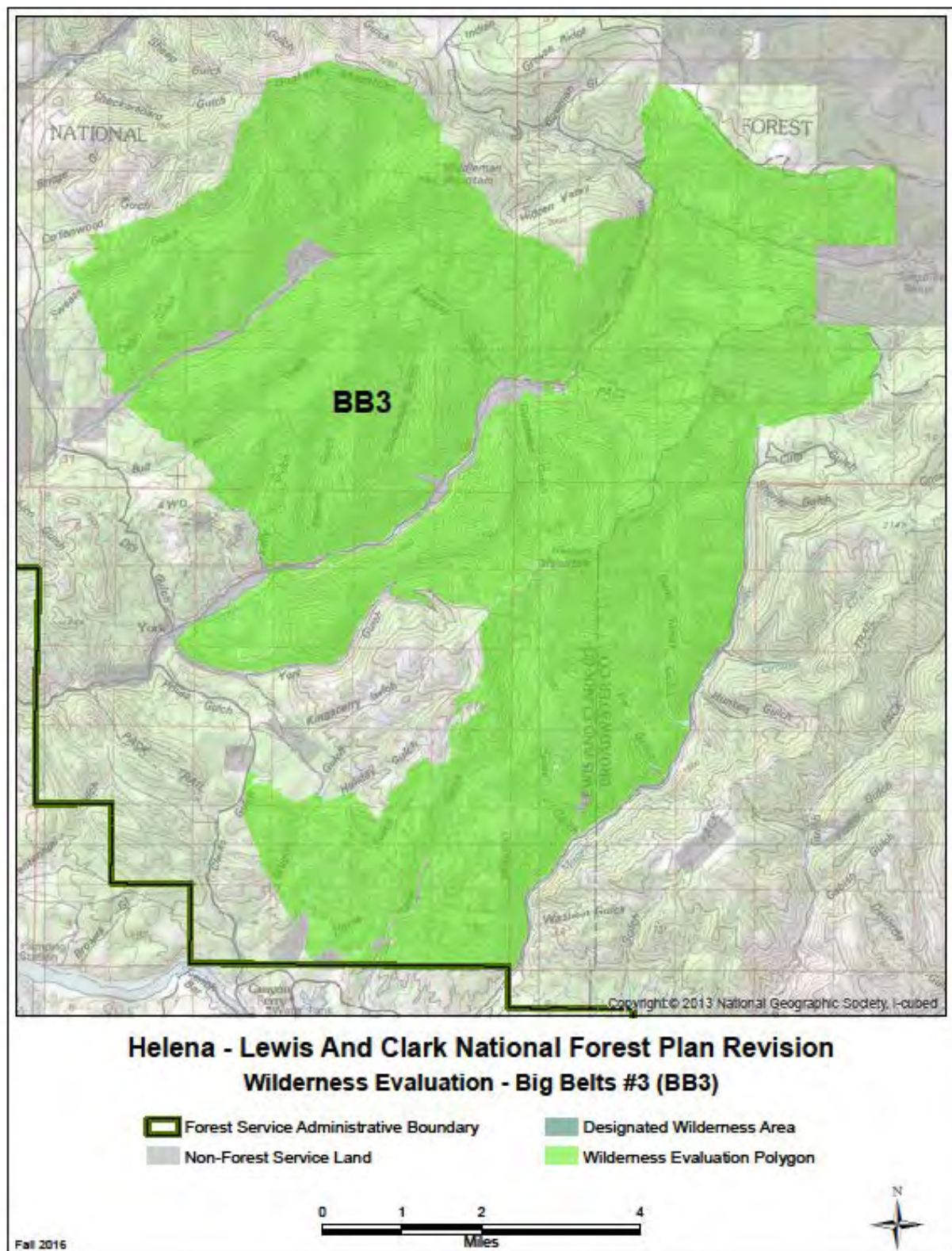
Features	Description and scale
	population. Potential species of conservation concern and/or state at risk species: flammulated owl likely nesting in area, western toad. No rare aquatic species known.
Rare ecosystems	Ponderosa pine, limber pine, cottonwood, and aspen are all forested communities of interest due to their wildlife value which are not abundant in many areas of the HLC NF. Grass and shrublands, particularly bitterbrush and mountain mahogany communities, are also important ecosystem components. No rare aquatic ecosystems known.
Outstanding landscape features	Hanging Valley National Scenic Trail.
Historic and cultural resource sites	Thirty-five recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations, which all have the potential to yield scientific, educational or historic value.
Research Natural Areas	Cabin Gulch RNA in northwestern part of the polygon.
High quality water resources or important watershed features	None known.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 27. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Large landmass that extends south from Hogback Mountain to Maggie Creek. The area is fragmented by designated motorized routes and private land inholdings.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private lands along Soup Creek and Trout Creek. Some private inholdings along the southern border the polygon in Cave Gulch.
Management of adjacent lands	North of the polygon there is heavily roaded and harvested landscape that is seasonally open to motorized recreation. Northeast corner is bordered by private lands. East and southeast is a continuation of Forest Service system lands that are fragmented by motorized use. South and southwest is Forest Service system lands impacted by logging, mining and motorized use.







## North Belts Area (BB4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 28. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	About 48% of BB4 supports Douglas-fir dominated forests, and 19% is dry grassland. Ponderosa pine dominance types are found on roughly 6%, and dry shrublands on 5%. There are trace or small amounts of other dominance types present as well, including lodgepole pine, Engelmann spruce, limber pine, aspen, and Rocky Mountain juniper. Due to the Cave Gulch fire of 2000 that burned the western half of the area, a substantial portion (about 17%) is mapped as "transitional", where the vegetation is likely to become forested but the type is not yet discernible via imagery. On this dry landscape, some of these areas may be grass/shrublands for an extended period of time.
Potential vegetation types	Over 72% of the area has a warm dry forested potential vegetation type, and just over 20% has a dry grassland potential vegetation type. There are a few other potential types present in very small abundance, including cool moist forest, mesic grassland, dry shrubland, riparian, and sparse vegetation.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 1,283 acres within BB4 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest: 4700 acres of goshawk potential nesting habitat, but only 117 acres of mature multi-storied lynx habitat (optimal winter foraging habitat); lynx habitat scattered, not occupied. **Note that these habitats increase in extent and value in combination with similar in BB5. ***</li> <li>• Big game: 2400 acres secure elk habitat; immediately adjacent to elk calving habitat on non-NFS land. Possible moose presence in riparian.</li> <li>• Likely breeding habitat for Townsend's big-eared bat.</li> <li>• WCT in Magpie and Avalanche Creeks.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 29. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in this area. It is possible that some historic tree cutting occurred prior to the time of detailed record keeping (prior to the 1950's).
% of area without known invasive weeds	According to data as of 2/10/2016, 90.9%% of BB4 is not associated with invasive plant inventories.

Measures	Outcome
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 14%, Class 3: 86% Ratings due to grazing and dewatering impacts, roads and trails, and water quality impairments. Avalanche and Hellgate Creeks on the State 303(d) list due to these impacts.
Miles of motorized road/trail within 300' of streams	13.7 miles
Noticeable wildfire suppression impacts	Cave Gulch (2000): dozer line evidence in Hunters and Carpenter's gulches.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 30. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no records of either past harvest or prescribed fire treatments in this area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	Multiple abandoned mines are scattered across the polygon. These mines take away from the wilderness character of the majority of the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately ¼ mile of fencing within BB4.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Some dispersed camping along Avalanche Road. No outfitter camps within the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Busy open roads that surround the polygon. Seasonal motorized trail system throughout the polygon. Snowmobiling during winter months.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Twenty-two recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites.

Improvement Type	Presence and extent of departure from naturalness
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	0.9 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic roads in this evaluation area. However there is a high probability they exist on the landscape.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 31. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Hellgate Ridge, Doolittle Gulch, Thompson Gulch, and Hunters Gulch are all available for motorized use in the summer.
Area available for winter motorized opportunity	Groomed snowmobile routes in Magpie Creek. Open to motorized use in the winter but does not receive a lot.
Proximity to private lands and non-Forest Service roads.	Private lands in Hellgate Gulch and along Avalanche Road.
Proximity to developed recreation sites outside of the polygon area.	No developed recreation sites nearby.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 32. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Isolated locations within McGregor Gulch, Spilling Gulch, and Shannon Gulch.
Primitive and semi-primitive non-motorized winter recreation.	Entire polygon is open to winter motorized use. Not much available for primitive and semi-primitive non-motorized winter recreation use.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Rock climbing in Hellgate Gulch. Busy with hikers during hunting season.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 33. Size and Description**

Size of Polygon	Description
14,140 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

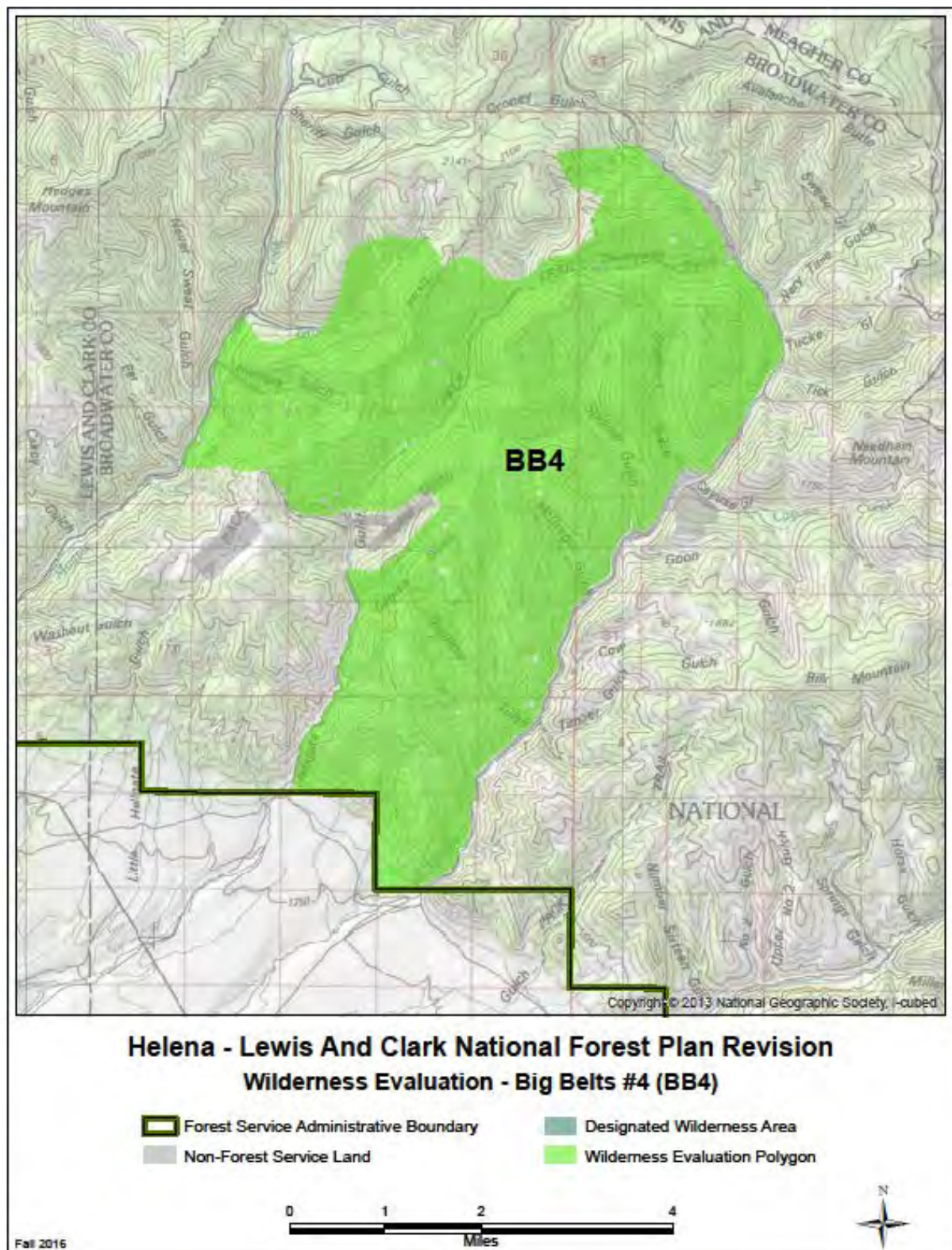
**Table 34. Features present**

Features	Description and scale
Rare plant communities	Records show the presence of one potential plant species of conservation concern in this area, <i>Polygonus douglasii</i> spp. <i>Austinae</i> . Small amounts of limber pine, <i>Pinus flexilis</i> , are also present.
Rare animal species or communities	Federally listed species Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: Townsend's big-eared bat, evidence of possible breeding in or adjacent to area. WCT in Avalanche and Magpie Creeks.
Rare ecosystems	Small areas of limber pine, ponderosa pine, and aspen are mapped in this area, which are not abundant forested communities in many areas on the HLC NF. Grass and shrublands are also important vegetative communities found in this area. No rare aquatic ecosystems known.
Outstanding landscape features	Cliffs and rock formation in Hellgate Gulch.
Historic and cultural resource sites	Twenty-two recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites. The high concentration of rock art offers exceptional scientific, educational and historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 35. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	This polygon is an irregular shape that includes portions of Hellgate Gulch, Fisher Gulch, and the west slopes of Avalanche Creek.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	All private lands are excluded from this polygon.
Management of adjacent lands	Forest Service system lands to the north, west, and east. Private lands to the south that are used primarily for agriculture.



## Bilk Mountain Area (BB5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 36. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance type in this area is Douglas-fir, which is mapped on over 66%. Dry grasslands are also common, found on nearly 14%. Lodgepole pine forests can be found on just under 10%. Very small amounts of other dominance types are also present, including shrublands, subalpine fir, Engelmann spruce, limber pine, Rocky Mountain juniper, and a tiny trace of whitebark pine.
Potential vegetation types	Warm dry forest potential vegetation types dominated the area, covering about 80%. Dry grassland and mesic grassland potential types together make up about 14%. Cool moist forest potential types are also present, on about 4%. Very small amounts of shrubland and riparian potential types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 1,206 acres within BB5 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest: 14,000 acres of goshawk potential nesting habitat (1 known nesting territory); 3000 acres potential lynx habitat (590 acres of mature multi-storied, which is optimal winter foraging habitat; but area not occupied by lynx). . **Note that these habitats increase in extent and value in combination with similar in BB4. *** Roughly 280 acres possible old growth habitat in patches of varying size.</li> <li>• Big game habitats: Over 14,000 acres secure elk habitat; immediately adjacent to elk calving habitat on non-NFS land. Possible moose presence in riparian.</li> <li>• Subalpine/alpine habitats: Roughly 2000 acres potential wolverine habitat.</li> <li>• WCT in Avalanche Creek and White Gulch, plus a tributary to White Gulch.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. Non-native trout likely.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 37. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in the area. It is possible that some historic tree cutting occurred which predates these records (prior to the 1950's).
% of area without known invasive weeds	According to data as of 2/10/2016, 95.3%% of BB5 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2:47%, Class 3: 53% Impacts from grazing and dewatering. Avalanche Creek on 303(d) list for dewatering and grazing impacts
Miles of motorized road/trail within 300' of streams	7.7 miles
Noticeable wildfire suppression impacts	No fire and no fire suppression impacts since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 38. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	While no past harvest occurred, some prescribed burning activities did occur in this area which were determined to no longer be substantially noticeable. These treatments included under burning and broadcast burning which occurred primarily in 1988, with some small areas treated in the late 1990's and early 2000's. The effects of these treatments appear similar to wildfire.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	Multiple abandoned mines in southern portion of polygon and along Avalanche Creek. These mines take away from the wilderness character of the south portion of the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 2.5 miles of fencing and 11 stock water tanks within BB5.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed camping along Avalanche Creek, Avalanche Butte, and the Ridge Road. No outfitter camps.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.



Improvement Type	Presence and extent of departure from naturalness
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Motorized use heard and seen from roads on the perimeter.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Fifteen recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites. This evaluation area also lies within the Confederate Historic Mining District, which contains numerous unrecorded historic mining related features on the landscape.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	0.2 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	One recorded historic wagon route (10 miles) is located within the evaluation area. However, there is a high probability of other historic routes related to the Confederate Historic Mining District.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 39. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Nary Time motorcycle trail in Nary Time Gulch. White Gulch road and Spring Gulch roads are open. These routes are excluded but cut across the polygon in the south portion.
Area available for winter motorized opportunity	Upper end of White Gulch is open for snowmobile.
Proximity to private lands and non-Forest Service roads.	Private land inholding in White Gulch and along Cayuse Creek.
Proximity to developed recreation sites outside of the polygon area.	No developed recreation sites near the polygon.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 40. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Majority of the area open to primitive and semi-primitive recreation in Bilk Mountain and Cayuse Creek.
Primitive and semi-primitive non-motorized winter recreation.	All portions of the polygon except for White Gulch which is open to snowmobiles.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking and horseback riding, dispersed camping along the open roads around the perimeter. Area is popular with hunters in the fall.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 41. Size and Description**

Size of Polygon	Description
25,787 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 42. Features present**

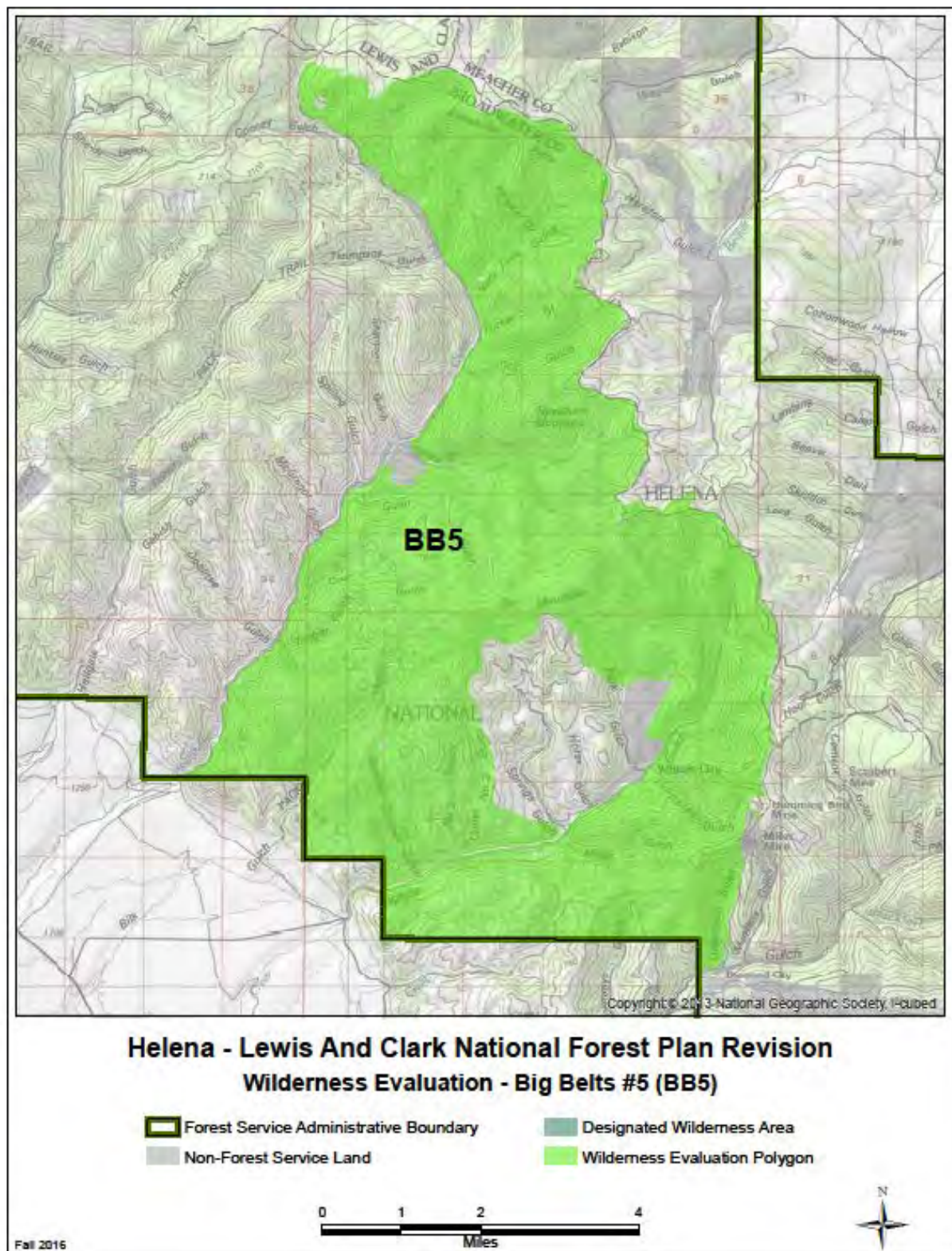
Features	Description and scale
Rare plant communities	Several potential plant species of conservation concern are known to occur in the area, including <i>Cirsium longistylum</i> , <i>Lesquerella klausii</i> , <i>Pinus albicaulis</i> , and <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. WCT in Avalanche and White Gulch
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA and is present in small amounts in this area. Other ecosystem components found in this area, including limber pine, are not abundant in many areas of the HLC NF. No rare aquatic ecosystems known
Outstanding landscape features	Pretty vistas had off of Needham Mountain, Bilk Mountain, and Cayuse Mountain.
Historic and cultural resource sites	Fifteen recorded cultural resources are within this evaluation area. The majority of these sites are associated with historic mining and contain structures, dwellings and relics of past occupations. This is also an area that contains a high concentration of prehistoric rock art sites. In addition, this evaluation area lies within the Confederate Historic Mining District, which contains numerous unrecorded historic mining related features on the landscape. All of these sites have the potential for scientific, educational or historic value.

Features	Description and scale
Research Natural Areas	None present.
High quality water resources or important watershed features	White Gulch is on the list of eligible WSRs, it is listed for outstanding its outstanding WCT fishery.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 43. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	This polygon is relatively narrow at the northern end then broadens to area that encompasses the landscapes between Avalanche Creek and Greenhorn Gulch to the east. There is a large exclusion area in the lower central part of the polygon.
Legally established rights or uses within the area	Private land ROW to private land in White Gulch.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private land in White Gulch and Cayuse Creek.
Management of adjacent lands	Timber management on Forest Service system lands on the north, east and western boundaries. Private land with agriculture use on the south boundary.



## Camas Creek Area (BB6)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 44. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	This area contains a mix of dominance types, ranging from Douglas-fir dominated forest (18%), to lodgepole pine (46%), to subalpine fir/Engelmann spruce mixes (25%). There are also dry grasslands (6%), and some whitebark pine forest (just over 2%). Very small amounts of other dominance types are also present, including shrublands, limber pine, aspen, and sparse vegetation.
Potential vegetation types	The area is dominated by cool moist forest potential vegetation types (69%), with warm dry forest types also common (20%). About 4% supports cold forest potential types, which is where whitebark pine would most likely thrive. There are also small amounts of grassland and shrubland potential types, and sparsely vegetated areas.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 22 acres within BB6 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest: 18,000 acres potential lynx habitat (2600 acres of mature multi-storied, which is optimal winter foraging habitat; note area not occupied by lynx); 13,000 acres of goshawk potential nesting habitat (1 known nesting territory); 2400 acres possible old growth habitat in patches of varying size, with substantial connected patches in the western portion of the area. Presence of Clark's nutcracker indicates availability of mature 5-needle pine, likely whitebark pine.</li> <li>• Subalpine/alpine habitat: 21,000 acres potential wolverine habitat, with approximately 9000 acres of that potential maternity habitat.</li> <li>• Big game habitats: Nearly 22,000 acres secure elk habitat. Immediately adjacent to elk calving habitat on non-NFS land. Possible moose presence in riparian.</li> <li>• No WCT.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. Non-native trout likely

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 45. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There is one small area with a record of past timber harvest; a single-tree selection harvest that occurred in 1960 and which affects less than 1% of the area (24 acres).

Measures	Outcome
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of BB6 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 27%, Class 3:73%, however, the polygon is in the headwaters of the impaired watersheds, above the impacted
Miles of motorized road/trail within 300' of streams	1.9 miles, but they don't appear to be heavily impacted.
Noticeable wildfire suppression impacts	Some fire activity but 0% affected by fire suppression.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 46. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	The only vegetation treatment on record is the small single tree harvest that occurred in 1960; this treatment affects less than 1% of the area and was determined to be no longer substantially noticeable. No prescribed fire activities have occurred.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Weather station on the ridge between Atlanta Creek and Pickfoot Creek. Weather station is a few small low structure less than ¼ acre in size.
Areas of mining activities including both abandoned and active mines.	There are a few abandoned mines scattered throughout, They are insignificant spatially within the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1.1 miles of fencing within BB6.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps, however, one outfitter/guide permit for the area. Dispersed camping in Duck Creek pass and Blacktail Creek.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Small water pipelines in Spruce Creek, Boulder Creek and Atlanta Creek.
Presence of watershed treatment areas including contouring, diking, and channeling.	None.
Lands adjacent to development or activities that impact opportunities for solitude.	Timber harvesting activity to the north and southeast.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Currently there are only two recorded sites within this evaluation area, which are relics of past occupations. However, the northern portion is located within the Confederate Historic Mining District, therefore there is high potential for un-recorded structures, dwellings for relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.



Improvement Type	Presence and extent of departure from naturalness
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 47. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	None available for motorized use in summer.
Area available for winter motorized opportunity	None available for motorized use in winter.
Proximity to private lands and non-Forest Service roads.	No private land inholdings.
Proximity to developed recreation sites outside of the polygon area.	Stove Camp Trailhead on Duck Creek Pass on the edge of the polygon. Blacktail Trailhead on northern boundary in Blacktail Creek. This trailhead is about ¼ mile from boundary of the polygon.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 48. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Entire polygon is available for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Entire polygon is available for primitive and semi-primitive winter recreation but not heavily used in the winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, hunting, fishing, backpacking in to high mountain lakes.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 49. Size and Description**

Size of Polygon	Description
23,879 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 50. Features present**

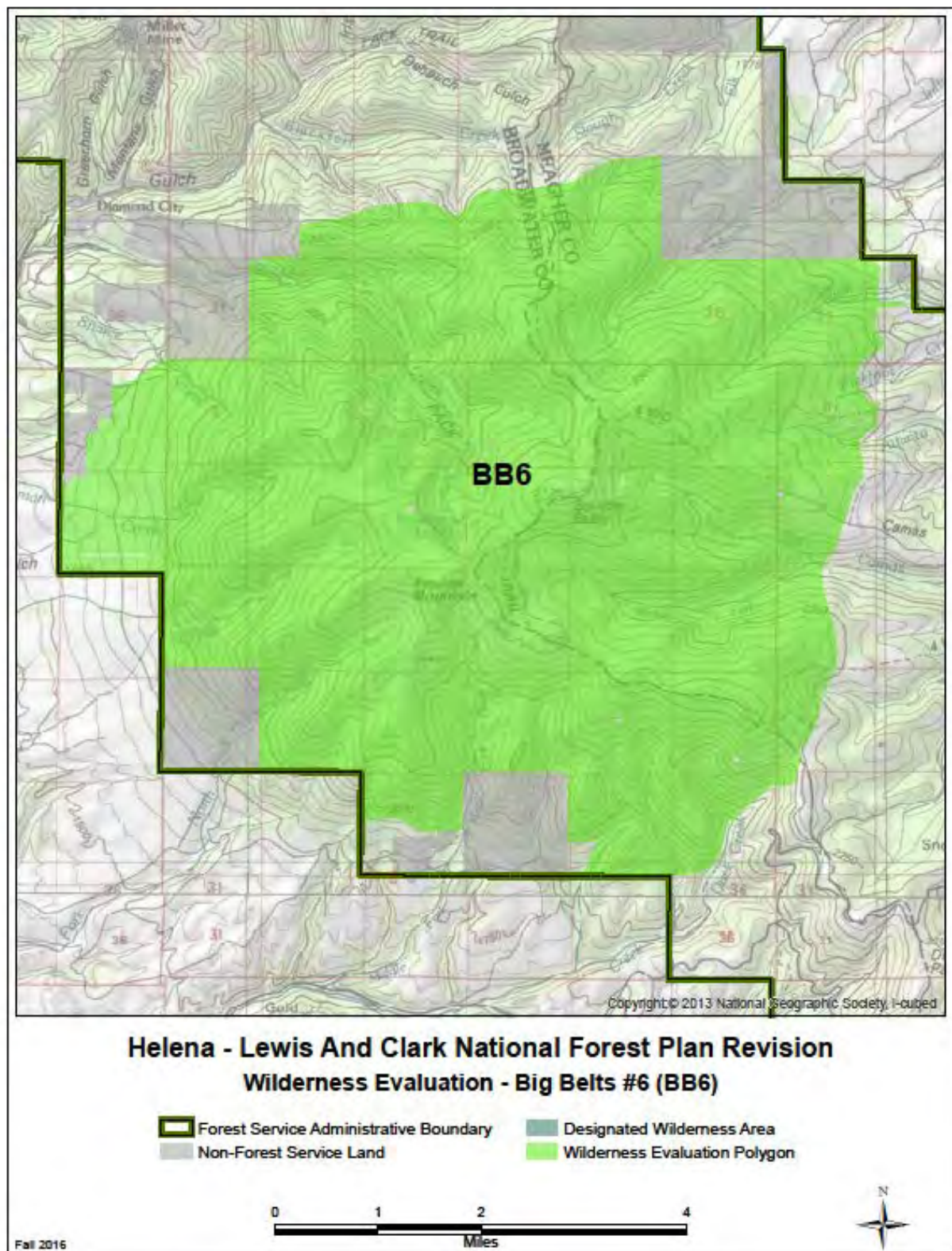
Features	Description and scale
Rare plant communities	Several potential plants of conservation concern are known to occur in this area, including <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Cirsium longistylum</i> .
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: wolverine No known rare aquatics.
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA and is found in small amounts in this area. Limber pine communities are also of interest on the HLC NF. No known rare aquatic ecosystems.
Outstanding landscape features	High mountains, wide vistas, small alpine lakes.
Historic and cultural resource sites	Currently there are only two recorded sites within this evaluation area, which have the potential for scientific, educational or historic value. However, the northern portion is located within the Confederate Historic Mining District, therefore there is high potential for un-recorded historic sites associated with past mining.
Research Natural Areas	None present.
High quality water resources or important watershed features	Isolated headwaters area, steep, no major disturbances.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 51. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	A large circular are surrounding Boulder Mountain and Boulder Baldy peaks.
Legally established rights or uses within the area	Water rights associated with the pipelines.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	No private inholdings.
Management of adjacent lands	Timber harvest and road building on Forest Service system lands to the north and south east. Private land with agricultural and timber harvest uses to the southwest.





## Mount Baldy Area (BB7)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 52. Plant and animal communities**

<b>Plant and Animal Communities</b>	<b>Composition</b>
Existing vegetation dominance types	This area is primarily dominated by higher elevation forests, including lodgepole pine dominance types (35%) and subalpine fir/Engelmann spruce mixes (35%). There are also some Douglas-fir forests (about 10%). Sparsely vegetated areas are also common (11%), and likely consist mainly of rocky alpine sites. Whitebark pine forest is present on about 6% of the area. Small amounts of other dominance types are also present, including grasslands, shrublands, and limber pine.
Potential vegetation types	Cool moist forest potential vegetation types dominate, representing about 68% of the area. Warm dry forests are present on about 6% at the lowest elevations, and cold forest potential types are found on about 11% at the highest elevations, representing the area where whitebark pine could most likely thrive. In addition to the sparsely vegetated (alpine) areas that cover about 11%, there are very small amounts of grassland and shrubland potential types present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 108 acres within BB7 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest: Roughly 14,000 acres potential lynx habitat (2300 acres of mature multi-storied, which is optimal winter foraging habitat; note area not currently occupied by lynx); 7400 acres of goshawk potential nesting habitat. Roughly 1000 acres possible old growth habitat in patches of varying size. Presence of Clark's nutcracker indicates availability of mature 5-needle pine, likely whitebark pine.</li> <li>• Big game habitats: Nearly 16,000 acres secure elk habitat. Possible moose presence in riparian.</li> <li>• Subalpine/alpine habitat: roughly 15,000 acres potential wolverine habitat, with approximately 3400 acres of that potential maternity habitat. Golden-mantled ground squirrel presence also indicative of subalpine/alpine habitats.</li> <li>• WCT in Ray Creek.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. Non-native trout likely

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 53. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There is a record of one small commercial thinning activity that occurred in this area in 1958, representing less than 1% of the area (30 acres). There appears to be an old sale/with roads in the southwest corner of the polygon, (was private on old rec map)/section 28.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.4%% of BB7 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 19%, Class 2: 81% Polygon is in headwaters of these watersheds though, very little disturbance or impacts
Miles of motorized road/trail within 300' of streams	0.0 miles
Noticeable wildfire suppression impacts	No recorded fire instances since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 54. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	The only record of past vegetation treatment found in this area is a 30-acre commercial thin from 1950 which was determined to no longer be substantially noticeable on the landscape.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Multiple permittees at a communication site in the northwest portion of the polygon and is visible from within the polygon.
Areas of mining activities including both abandoned and active mines.	Not extensive. Only one mine mapped in northern portion of the polygon near Duck Creek Pass.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1.1 miles of fencing within BB7.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed camping along Duck Creek Pass and at all of the upper alpine lakes. Outfitter camp near the Needles.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Abandoned powerline west of the communication site which is still visible from within the polygon.
Presence of watershed treatment areas including contouring, diking, and channeling.	None.

Improvement Type	Presence and extent of departure from naturalness
Lands adjacent to development or activities that impact opportunities for solitude.	Surrounded by timber harvest on all four sides. Forest Service system land harvest on north, west and south. Private land harvesting on the east.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	No recorded sites. There is the potential for two historic administrative structures (fire lookouts) that have been mentioned in references, but have not been visited and/or recorded.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Recommended as wilderness in the 1986 Helena Forest Plan.
Number of miles of maintenance level 1 road templates.	0.7 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 55. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Some motorized use on the road up the communication site in summer. Otherwise, the bulk of the area is non-motorized.
Area available for winter motorized opportunity	The entire polygon is non-motorized in winter.
Proximity to private lands and non-Forest Service roads.	No private land inholdings.
Proximity to developed recreation sites outside of the polygon area.	Gypsy Lake Campground and Trailhead to the north. Hidden Lake Trailhead on Duck Creek Pass. Edith Lake Trailhead to the south.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 56. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, hunting, fishing, backpacking in to high mountain lakes.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 57. Size and Description**

Size of Polygon	Description
18,335 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 58. Features present**

Features	Description and scale
Rare plant communities	Several potential plant species of conservation concern can be found in this area, including <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Cirsium longistylum</i> , and <i>Juncus hallii</i> .
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: wolverine, black rosy finch WCT in Ray Creek.
Rare ecosystems	The mapped area of whitebark pine dominance (6% of the area, or about 1087 acres) represents one of the more abundant whitebark communities in the Big Belts GA. The additional area of cold forest potential vegetation types represent potential expansion opportunities for this species of concern. Whitebark pine and alpine ecosystems are relatively rare and important features on the HLC NF, and whitebark is a candidate species for listing under the ESA. Several whitebark stands in this area are identified as genetically diverse areas valued for their contributions to the Regional whitebark pine rust resistant seed program. No known rare aquatic ecosystems.
Outstanding landscape features	The Needles, numerous alpine lakes, high mountain peaks and valley vistas.
Historic and cultural resource sites	None known.
Research Natural Areas	None present.
High quality water resources or important watershed features	Ray Creek is on the list of eligible WSRs, for WCT.

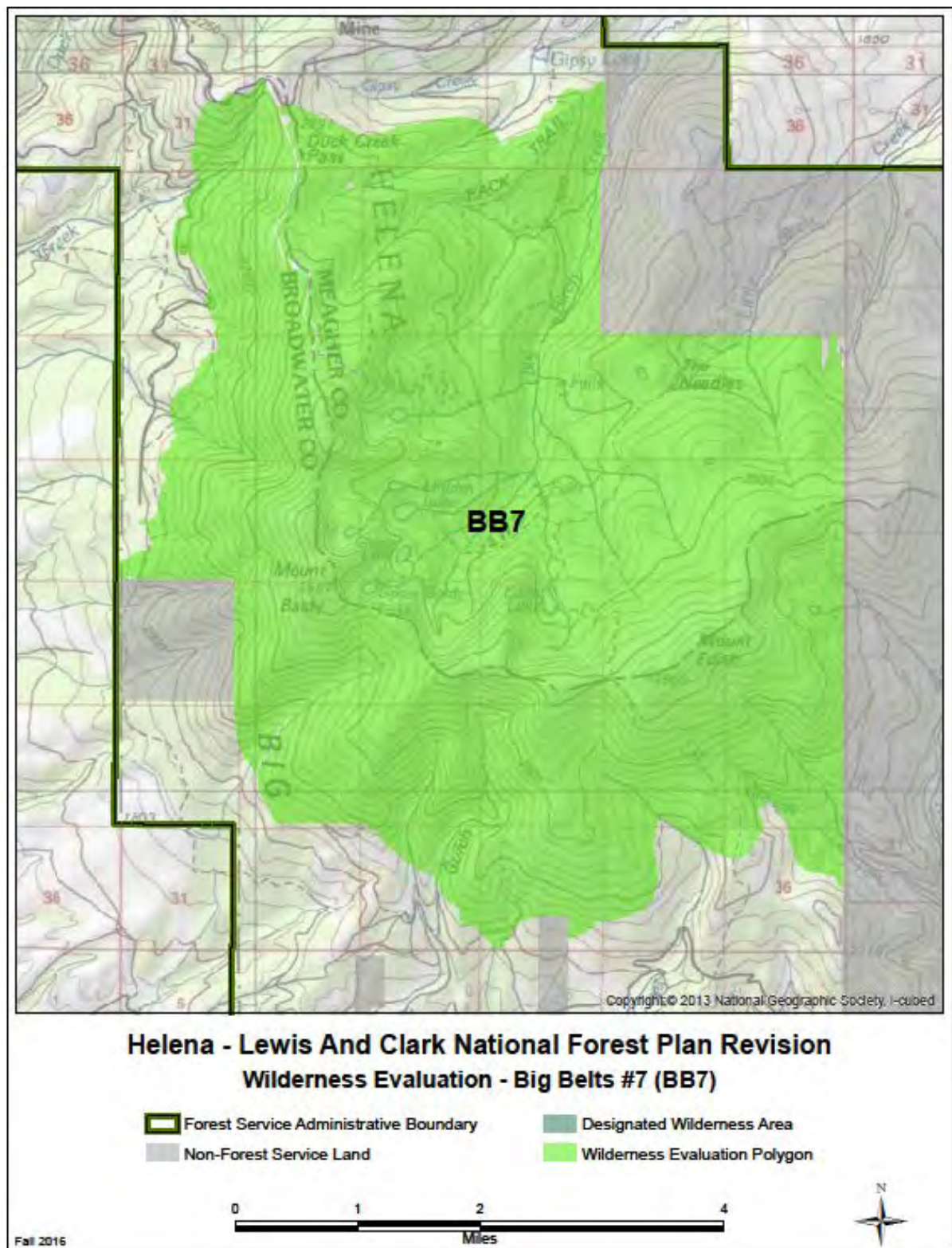
Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 59. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Large oval-shaped area that includes the Mount Baldy, Mount Edith, and Needles areas.
Legally established rights or uses within the	None known.

<b>Factors</b>	<b>Description and scale</b>
area	
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	No private inholdings.
Management of adjacent lands	Timber harvest and road building on Forest Service system lands to the north, west and south. Heavily impacted private lands to the east.





## Grassy Mountain Area (BB8)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 60. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Most of this area supports Douglas-fir dominated forests (78%). Dry grasslands are also common (12%). Small amounts of other dominance types are also present, including shrublands, ponderosa pine, lodgepole pine, subalpine fir, Engelmann spruce, cottonwood, and aspen. In addition, a small portion (280 acres) was burned in the Maudlow-Toston fire of 2000 and is classified as "transitional" (3%), where forest cover has not yet re-established.
Potential vegetation types	The area is dominated by warm dry forest potential vegetation types (over 81%), with dry grassland types the next most common (just over 8%). There are small amounts of other potential types present, including cool moist forest, mesic grassland, dry shrublands, riparian/wetland, and sparsely vegetated areas.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 34 acres within BB8 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest minimal: Less than 800 acres potential lynx habitat based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 4600 acres of goshawk potential nesting habitat. Roughly 150 acres possible old growth</li> <li>• Approximately 2200 acres secure elk habitat. Possible moose presence in riparian. Less than 200 acres potential wolverine habitat.</li> <li>• No WCT present.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 61. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Records indicate that two small harvests occurred in this area in 1989, a seed tree seed cut and a shelterwood preparatory cut which together totaled 38 acres (less than 1% of the area).
% of area without known invasive weeds	According to data as of 2/10/2016, 99.4%% of BB8 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%
Miles of motorized road/trail within 300' of streams	0.5 miles, but several motorized roads/trails cross through the polygon.



Measures	Outcome
Noticeable wildfire suppression impacts	Maudow-Toston: Dozer or fellerbuncher fuel break through Sec. 30 and 29.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 62. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	Several small vegetation treatments occurred in this area which all together total nearly 2% of the area. In addition to the two small harvests in 1989, piles were burned on roughly 74 acres. However, the pile burning occurred twice on the same area, which is the same area that was harvested; therefore the actual footprint of activity is only about 35 acres total. These treatments were determined to be no longer substantially noticeable due to the residual vegetation appearing natural today.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Multi-structure communications complex on Grassy Mountain on the east side of the polygon.
Areas of mining activities including both abandoned and active mines.	Several abandoned mine points within polygon
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 3.2 miles of fencing and 3 stock water tanks within BB8.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed camping in Klondike Pass, Blacktail road, and south of Skidway Campground. No outfitter camps.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None known.
Presence of watershed treatment areas including contouring, diking, and channeling.	None.
Lands adjacent to development or activities that impact opportunities for solitude.	Motorized use on open roads surrounding the polygon. Highway 12 forms the western boundary of the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	None recorded at this time. However, there is the potential of an unrecorded historic site since old ski runs are visible west of Skidway Campground.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	0.3 miles

Improvement Type	Presence and extent of departure from naturalness
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 63. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	The entire eastern boundary is a motorized trail and is open for summer motorized use.
Area available for winter motorized opportunity	Area is not available for winter motorized recreation.
Private land within the polygon.	No private land inholdings.
Developed recreation sites.	Skidway Campground, Deep Creek Picnic area, and Blacktail Trailhead are located along Highway 12.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 64. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The influence of Highway 12 and the motorized routes along Grassy Mountain reduce opportunities for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Closed to motorized winter recreation so opportunities to experience primitive and semi-primitive winter recreation are good.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, hunting, motorized recreation on eastern boundary, and cross country skiing around Skidway.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 65. Size and Description**

Size of Polygon	Description
6,194 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

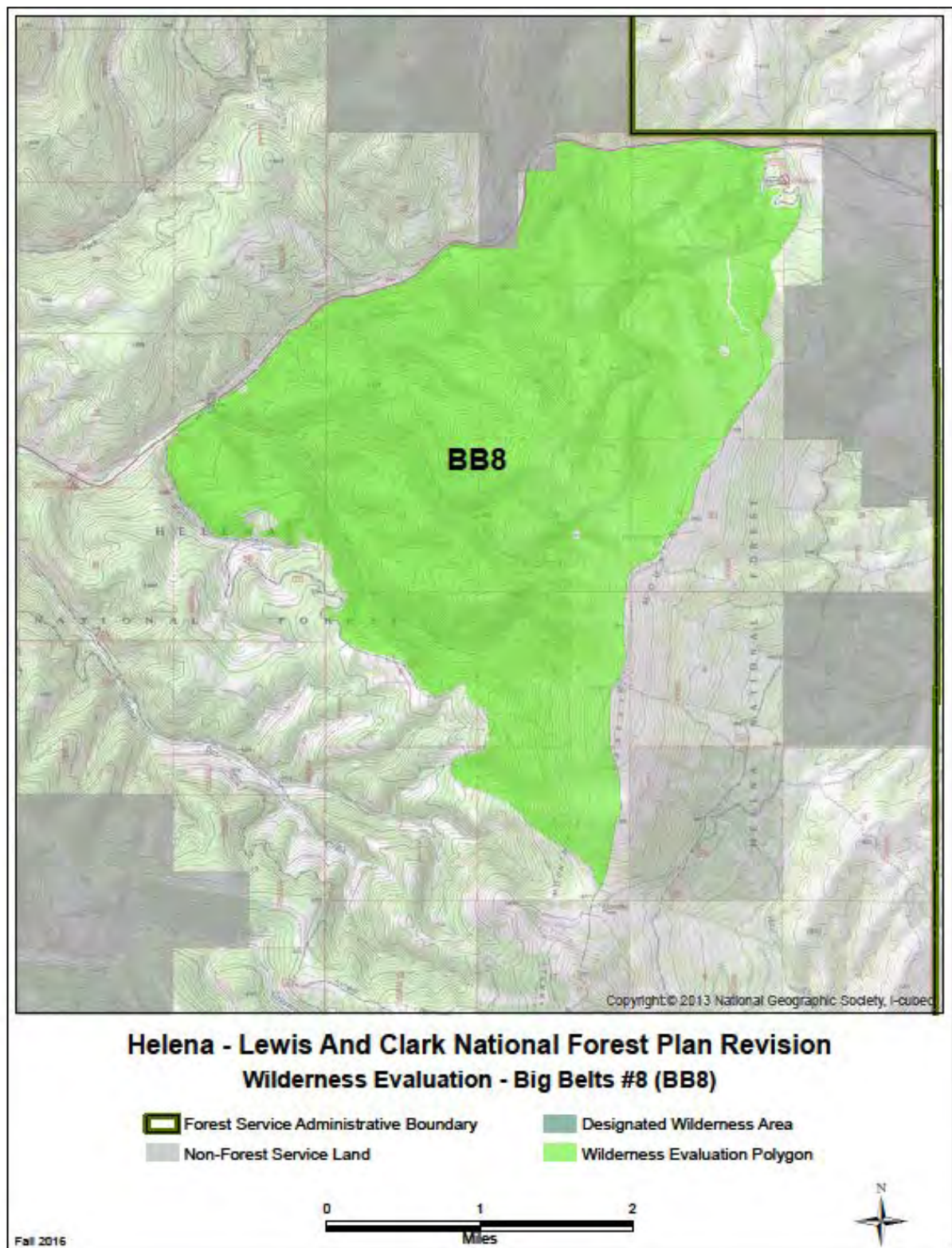
**Table 66. Features present**

Features	Description and scale
Rare plant communities	The only potential plant of conservation concern known to occur in this area is <i>Polygonum douglasii</i> ssp. <i>Austinae</i> .
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx possible. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: none documented No known rare aquatic species
Rare ecosystems	There are no known rare ecosystem features related to vegetation, other than the minor presence of cottonwood and aspen which are limited in extent on the HLC NF. No known rare aquatic ecosystems
Outstanding landscape features	High mountain vistas on Grassy Mountain.
Historic and cultural resource sites	None known at this time.
Research Natural Areas	None present.
High quality water resources or important watershed features	None.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 67. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Arrow-shaped land area on Grassy Mountain east of Deep Creek.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	No private inholdings.
Management of adjacent lands	Timber harvest and road building on Forest Service system lands to the northwest and southwest.



## Willow Creek Area (BB11)

This polygon includes four small parcels that all together equal 121 acres.

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 68. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Due to recent wildfire activity, over 60% of this small area is mapped as "transitional" in VMap, indicating that the vegetation type is not identifiable although tree seedlings may be re-establishing. Roughly a third of the area is classified as dry grassland, and about 6% maps as a Douglas-fir dominance type. There are trace amounts of ponderosa pine and shrublands. Given the location and elevation of this area, grasslands may dominate the burned areas for some time, although Douglas-fir and/or ponderosa pine may also establish.
Potential vegetation types	About 68% of the area has a warm dry forested potential vegetation type, consistent with supporting Douglas-fir and ponderosa pine. 27% of the area is a dry grassland potential type, and nearly 5% is a dry shrubland potential type.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 2 acres within BB11 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	Big game habitats: Roughly 50 acres secure elk summer habitat and roughly 125 acres bighorn sheep winter range. These habitats are not significant by themselves but increase in value paired with adjacent wilderness and potentially with BB1 and BB3. No WCT.
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. None others documented. No known non-native aquatic species.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 69. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past timber harvest occurring in this area.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.2% of BB11 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%, but no impacts in the polygons
Miles of motorized road/trail within 300' of streams	0.0 miles
Noticeable wildfire suppression impacts	None present.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 70. Improvements and extent of departure from naturalness**

<b>Improvement Type</b>	<b>Presence and extent of departure from naturalness</b>
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no records of past timber harvest or prescribed fire activities in this area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	None.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	None.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None.
Presence of watershed treatment areas including contouring, diking, and channeling.	None.
Lands adjacent to development or activities that impact opportunities for solitude.	Surrounded by undeveloped State of Montana lands.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	No known sites.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 71. Impacts influencing solitude**

<b>Impacts</b>	<b>Mitigating Factors (include topography and screening that influence pervasive sights and sounds)</b>
Areas available for summer motorized opportunity	Area not available for summer motorized recreation.
Areas available for winter motorized opportunity	Area not available for winter motorized recreation.
Proximity to private lands and non-Forest Service roads.	These parcels lie adjacent to state game management area.
Proximity to developed recreation sites outside of the polygon area.	No developed recreation sites in the area. Willow Creek Trailhead outside of the Gates of the Mountains Wilderness on Montana State lands.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 72. Primitive or unconfined types of recreation**

<b>Measures</b>	<b>Descriptions and Locations</b>
Primitive and semi-primitive non-motorized summer recreation	Entire parcels available for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation	Entire parcels available for primitive and semi-primitive winter recreation. Inaccessible in winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking and hunting.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 73. Size and Description**

<b>Size of Polygon</b>	<b>Description</b>
121 acres	This polygon consists of 4 small parcels that lie adjacent to the northern boundary of the Gates of the Mountains Wilderness. There are no other Forest Service system lands in this area. They are effectively already being managed as if they are wilderness.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 74. Features present**

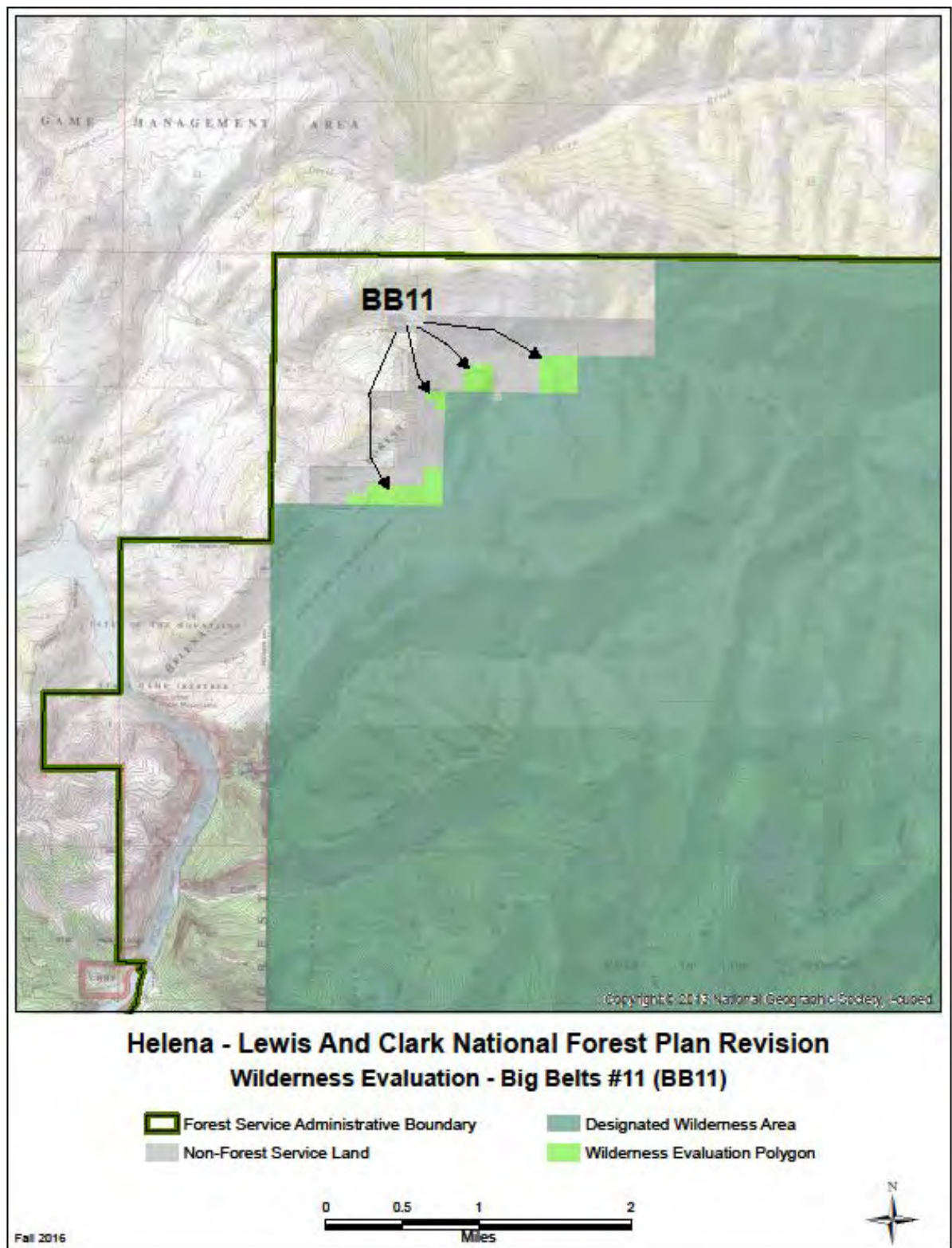
<b>Features</b>	<b>Description and scale</b>
Rare plant communities	There are no records of rare plants or potential plant species of conservation concern in this area.
Rare animal species or communities	Federally listed species: Occasional, transient presence of grizzly or lynx likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: None documented No rare aquatic species.
Rare ecosystems	Ponderosa pine is a species of management interest and is present in minor amounts in this area. No rare aquatic ecosystems.
Outstanding landscape features	Geologic rock features.
Historic and cultural resource sites	No known sites.
Research Natural Areas	None present.
High quality water resources or important watershed features	None.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 75. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Four small parcels of Forest Service system lands adjacent to the northern boundary of the Gates of the Mountains Wilderness.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Borders a state game management area that limits access.
The presence and amount of non-Federal land in the area	No private inholdings.
Management of adjacent lands	Gates of the Mountains Wilderness to the south and state wildlife management area on all other sides.





## Castles Geographic Area

### Wapiti Peak Area (CA1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 76. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance type in this area is lodgepole pine (pure or mixed), which covers about 56%. Douglas-fir forest is also common, representing about 19%. Subalpine fir and Engelmann spruce forests (and mixes of the two) cover about 14%. Dry grasslands are present on nearly 7%. There are small areas dominated by whitebark pine or limber pine (about 2% each). There are very small amounts of other dominance types, including shrublands and cottonwood.
Potential vegetation types	The bulk of this area has a cool moist forest potential vegetation type (68%), consistent with the dominance of lodgepole pine and Douglas-fir forest. Warm dry forest potential types make up about 24%, and dry grassland types about 5%. Trace amounts of cold forest, mesic grassland, shrublands, and riparian types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 47 acres within CA1 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest: Roughly 16,000 acres potential lynx habitat, with over 4200 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (area is not currently occupied by lynx). Roughly 22,000 acres of goshawk potential nesting habitat and at least one known nest territory. Roughly 150 acres possible old growth habitat in patches of varying size. Presence of Clark's nutcracker indicates availability of mature whitebark, limber, and/or ponderosa pine.</li> <li>• Approximately 15,000 acres secure elk habitat, and 1600 acres elk winter habitat and up to 2000 acres elk calving habitat. Possible moose presence in riparian.</li> <li>• Roughly 2600 acres potential wolverine habitat.</li> <li>• WCT in SF Willow, Richardson, Fourmile, and Cottonwood Creeks.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 77. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Over 99% of this area has been unaffected by past timber harvest. About 82 acres have been harvested, primarily consisting of a single-tree selection cut which occurred in 1959.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of CA1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 10%, Class 2: 85%, Class 3: 5% Class 3 impacts are downstream from polygon
Miles of motorized road/trail within 300' of streams	10.9 miles
Noticeable wildfire suppression impacts	No impacts to the polygon from wildfire suppression.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 78. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	Less than 2% of this area has been impacted by timber harvest and prescribed fire. Approximately 82 acres have been previously harvested, including a single-tree selection cut in 1959 (75 acres) and a commercial thin (7 acres) in 1982. Ample residual trees were left after these treatments, and enough time has passed that they are no longer substantially noticeable. In addition, about 437 acres have been treated with prescribed fire from 2000 to 2004, consisting of underburning, broadcast burning, and pile burning. These treatments were also determined to be not substantially noticeable, appearing similar to wildfire.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Repeater on Elk Peak. This has no tower, so minimal visual impact.
Areas of mining activities including both abandoned and active mines.	Areas of abandoned mines scattered throughout.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 16.6 miles of fencing and 7 stock water tanks within CA1.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping throughout the polygon. Specifically, along trails and along the periphery of the polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Water line in West Fork Cottonwood Creek.
Presence of watershed treatment areas including contouring, diking, and channeling.	Ditch along Fourmile Creek. Water diversion for the city water system for White Sulphur Springs. This diversion sends water to an impoundment which is located on private land.
Lands adjacent to development or activities that impact opportunities for solitude.	Outfitters to the west and south that have developments on private lands that minimally impact solitude.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There is approximately 35 recorded cultural sites in this evaluation area, which represent structures, dwellings and other relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There is one recorded historic road and five record historic trails in this evaluation area. However, there is a high probability of many historic routes in this polygon related to the past mining activity.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 79. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Most of the area is available for summer motorized activity through authorized ATV and motorcycle trails. The sights and sounds from these trails affect solitude in the entire polygon.
Area available for winter motorized opportunity	Majority of the area is open to snowmobile use in the winter. This includes uses on trails as well as cross country use.
Private land within the polygon.	Two small private land inholdings: one in Grasshopper Creek and one in Warm Springs Creek. The private inholding in Grasshopper Creek is authorized for full size vehicle access. The private inholding in Warm Springs Creek has authorized ATV only access.
Developed recreation sites.	There are two campgrounds north of the polygon: Grasshopper and Richardson. Both of these campgrounds create moderate impacts to lands near by these sites. Campers use the trail system by hiking, motorcycle and horses.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 80. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	There is very little opportunity to have a primitive or semi-primitive non-motorized recreation experience in the summer.
Primitive and semi-primitive non-motorized winter recreation.	While the area is open for snowmobile use, the terrain and the vegetation make snowmobile travel impracticable. Because of this, there are many opportunities to have a primitive or semi-primitive non-motorized experience in the winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	ATVs and motorcycle riding, horseback riding, hiking, rock climbing, hunting, fishing, minimal snowmobiling, mountain biking, dispersed camping around the periphery, and recreational mining.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 81. Size and Description**

Size of Polygon	Description
33,001 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 82. Features present**

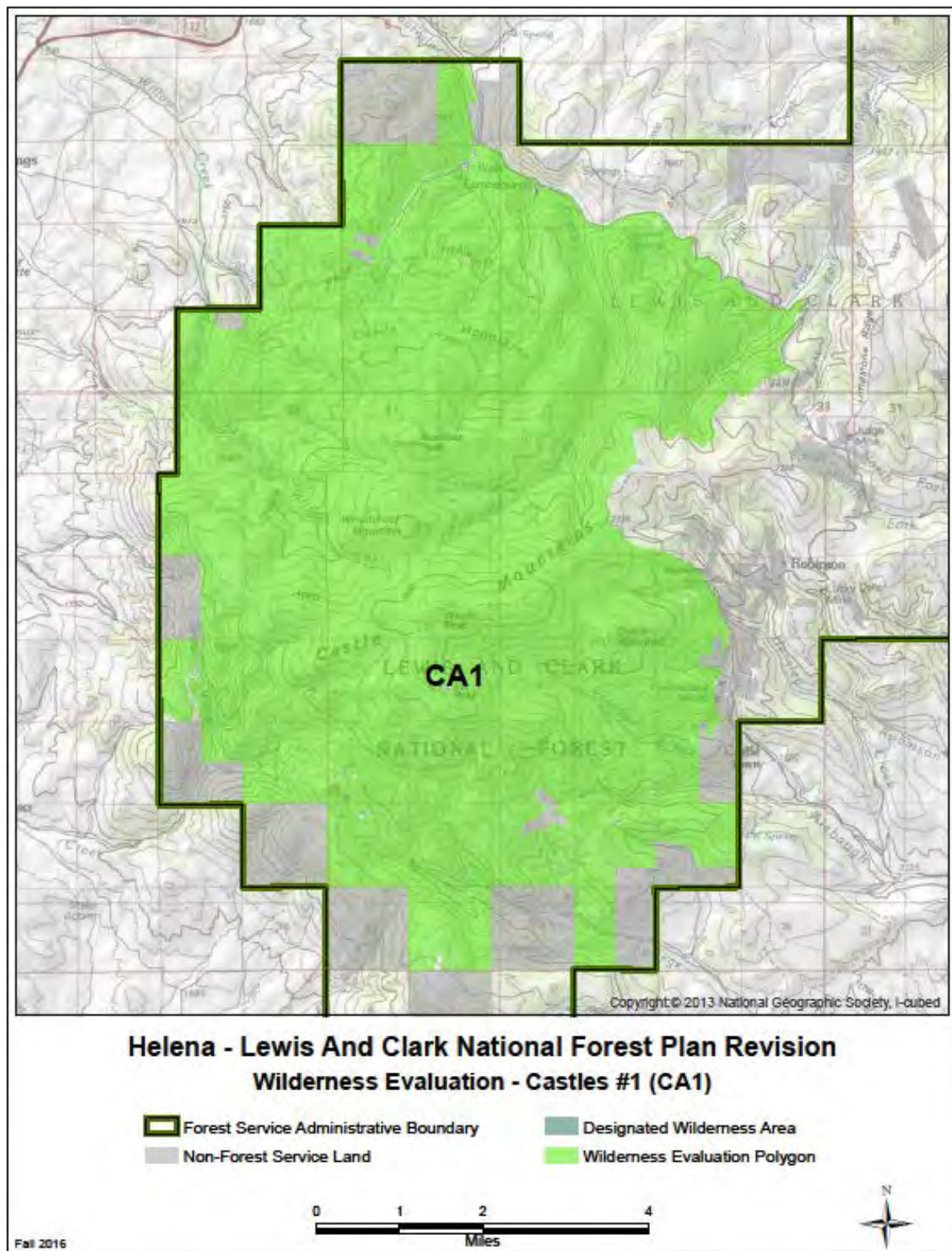
Features	Description and scale
Rare plant communities	Several potential plants of conservation concern are known to be present in this area, including <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Agoseris lackschewitzii</i> , and <i>Cirsium longistylum</i> .
Rare animal species or communities	Federally listed species: Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas. Potential species of conservation concern and/or state at risk species: None documented WCT in Fourmile, Richardson, SF Willow, and Cottonwood Creeks.
Rare ecosystems	Whitebark pine and limber pine forests are considered to be relatively rare and important ecosystem components; these species are present in fairly small amounts. Whitebark pine is a candidate species for listing under the ESA. No rare aquatic ecosystems known.
Outstanding landscape features	Castle geology and outcroppings.
Historic and cultural resource sites	All recorded cultural resources in the polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Polygon has streams with high quality water. Willow Creek is the municipal watershed for White Sulphur Springs. Area on north side of polygon has several sinkhole wetlands.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 83. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Large circular land area on the west end of the Castles.
Legally established rights or uses within the area	Private land inholdings are patented mining claims.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Two private inholdings: one in Warm Springs Creek and one in Grasshopper Creek.
Management of adjacent lands	Polygon surrounded by large private ranchlands on the south, west, and north. Forest Service system lands on the east.





## Whetstone Ridge Area (CA3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 84. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Pure Douglas-fir and Douglas-fir mixed forests dominate this area, making up about 56%. Dry grasslands are also common, present on about 26% of the area. Lodgepole pine dominance types are present on just over 7%. Limber pine dominated forests are notably present on about 6%. Other types are present in very small amounts, including subalpine fir, ponderosa pine, and shrublands.
Potential vegetation types	Warm dry forest potential vegetation types dominate the area, covering about 70%. Dry grassland types are the next most common, covering 24%. These potential vegetation types are consistent with the dominance of Douglas-fir forest, grasslands, and limber pine ecotone areas. Very small amounts of other potential types, including cool moist forest, mesic grassland, xeric shrubland, and riparian types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, there are currently no acres within CA3 associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 3100 acres potential lynx habitat, with over 2300 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 5000 acres of goshawk potential nesting habitat indicates. Roughly 200 acres possible old growth habitat and an additional 4000 acres potential as identified from aerial imagery. Both goshawk habitat and potential old growth habitat increase in value to wildlife in combination with similar habitat in NF lands immediately east of this WE polygon.</li> <li>• Approximately 1300 acres secure elk habitat reflects generally open vegetation types, but increases in value when combined with secure areas to east of polygon. Roughly 2800 acres elk winter habitat contiguous with additional winter range on adjacent non-NF land.</li> <li>• Gray-crowned rosy finch and black rosy finch indicate presence of specific subalpine/alpine habitats.</li> <li>• Observations of bird species associated with native grasslands indicates importance of that habitat type in and adjacent to this area.</li> <li>• No WCT.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely, but area mostly dry.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 85. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	100% of this area has had no timber harvest, according to available records. It is possible that historic harvest could have occurred prior to detailed record keeping (generally the 1950's).
% of area without known invasive weeds	According to data as of 2/10/2016, 100% of CA3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%
Miles of motorized road/trail within 300' of streams	15.2 miles, primarily along Flagstaff Creek.
Noticeable wildfire suppression impacts	No fires since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 86. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	No past timber harvest has occurred in this area. Roughly 270 acres were impacted by an underburn treatment in 1999 (just over 3% of the area). This treatment was determined to not be substantially noticeable, with effects similar to wildfire.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	Abandoned mines likely throughout.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately ½ mile of fencing and 11 stock water tanks within CA3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Not a lot of dispersed camping within the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Pipelines associated with stock tanks.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	None known.

Improvement Type	Presence and extent of departure from naturalness
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 16 recorded cultural resources which represent, structures, dwellings or other relics of past occupations. Some of these may not take away from the naturalness.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 87. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Motorized ATV and jeep trails dissect the polygon.
Area available for winter motorized opportunity	Most of the area is available for snowmobiling in the winter.
Proximity to private lands and non-Forest Service roads.	Private lands border the polygon on the north and the south.
Proximity to developed recreation sites outside of the polygon area.	No developed trailheads or campgrounds.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 88. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Very little of the area is available for primitive or semi-primitive non-motorized recreation in the summer due to the motorized trail network.
Primitive and semi-primitive non-motorized winter recreation.	Very little of the area is available for primitive or semi-primitive non-motorized recreation in the winter due to the motorized trail network.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, ATV riding, Jeep trail riding, motorcycling, hiking, and snowmobiling in the winter.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 89. Size and Description**

Size of Polygon	Description
8,676 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 90. Features present**

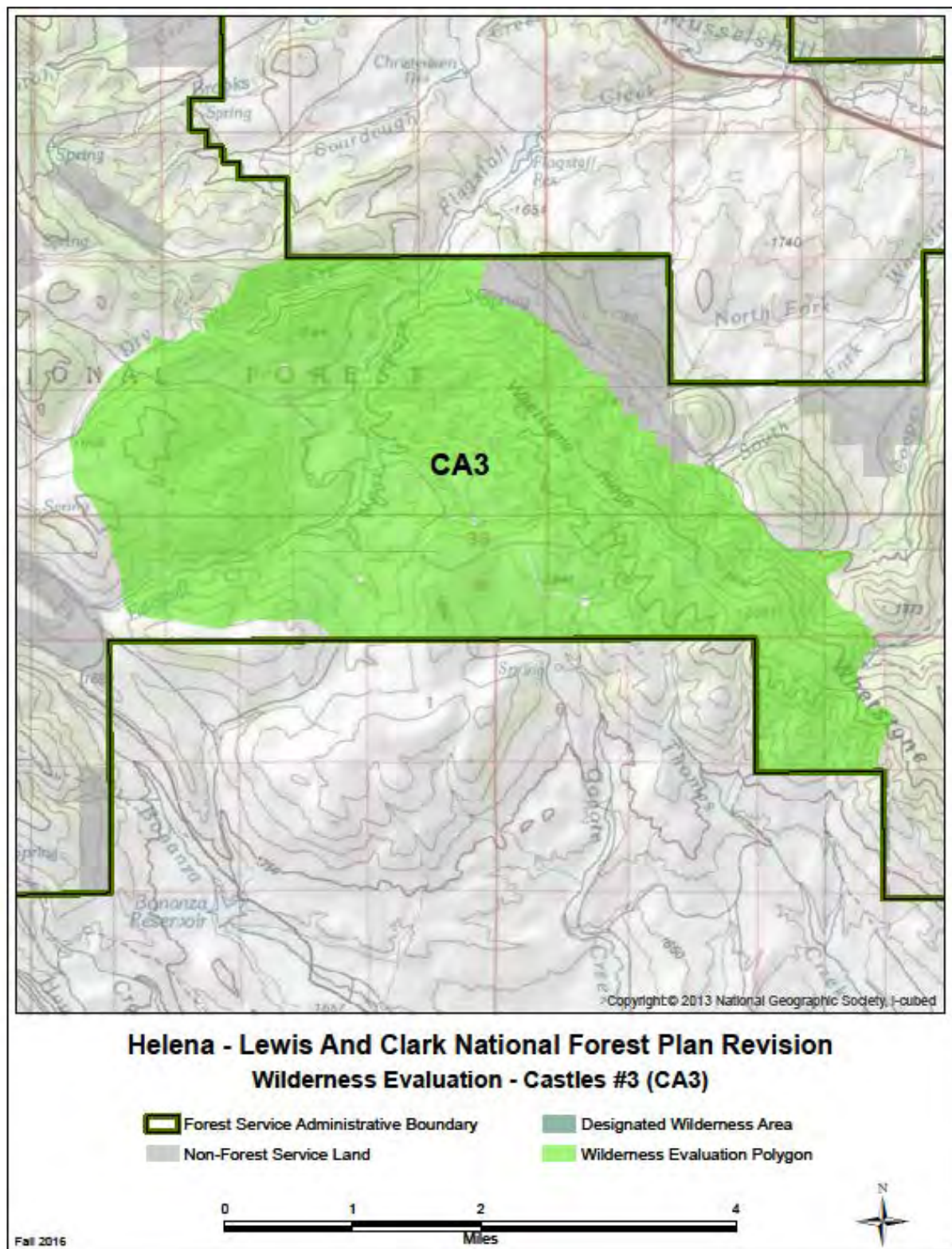
Features	Description and scale
Rare plant communities	Several potential plants of conservation concern are known to occur in this area, including <i>Pinus flexilis</i> and <i>Cirsium longistylum</i> .
Rare animal species or communities	Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas. Historic and possible occasional present occurrence of Sprague's pipit (primary habitat on adjoining non-NF lands). Potential species of conservation concern and/or state at risk species: Lewis's woodpecker, Gray-crowned rosy finch, black rosy finch. Possible occasional presence of greater sage grouse, Chestnut-collared longspur, although insufficient habitat in area to support these species; primary habitats likely on adjoining non-NF lands. No rare aquatic species known
Rare ecosystems	Limber pine-dominated areas are rare on the HLC NF, representing important ecotone ecosystems. These communities are present, generally on ridges with limestone substrate, in this area. No rare aquatic ecosystems known
Outstanding landscape features	None known.
Historic and cultural resource sites	All recorded cultural resources in this polygon have the potential for scientific, educational or historical value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None known

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 91. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Elliptical shaped and somewhat narrow. Fairly small.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to	None known.

<b>Factors</b>	<b>Description and scale</b>
protect wilderness characteristics	
The presence and amount of non-Federal land in the area	None within the polygon.
Management of adjacent lands	Private farm and ranchlands to the north and south. Forest Service system lands to the east and west.



## Crazies Geographic Area

### Loco Mountain Area (CR1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 92. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	This area includes a mix of dominance types, including lodgepole pine and lodgepole pine mixes (22%), subalpine fir and Engelmann spruce mixes (22%), dry grasslands (15%), and Douglas-fir mixes (12%). A fairly substantial proportion of sparsely vegetated areas (rock, scree) are also present (19%). Roughly 5% of the area supports whitebark pine-dominated forest, and another 5% is limber pine. Trace amounts of other dominance types are also present, including shrublands and juniper.
Potential vegetation types	The most common potential vegetation type is cool moist forest (48%), with warm dry forest potential types and cold forest potential types (where whitebark pine is most likely to thrive) each present on about 9%. Sparsely vegetated potential vegetation type areas (rock and scree) represent about 23%. A small amount of this area had enough vegetation on it to be given a dominance type above. Dry grassland and mesic grassland potential types are also present on about 5% each. There are trace amounts of shrubland and riparian types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 7 acres within CR1 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 10,000 acres potential lynx habitat, with over 7000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 8200 acres of goshawk potential nesting habitat. Less than 100 acres possible old growth habitat but an additional &gt;10,000 acres potential as identified from aerial imagery. These habitats increase in value to wildlife in combination with similar habitat in NF lands immediately west of this WE polygon.</li> <li>• Approximately 22,000 acres secure elk habitat, and roughly 4200 acres elk winter habitat contiguous with additional winter range on adjacent non-NF land. Roughly 2100 acres mule deer winter range contiguous with winter range on non-NF lands. Possible moose presence in riparian/wetlands.</li> <li>• Over 9000 acres potential wolverine habitat, with less than 100 acres identified as possible maternal habitat.</li> <li>• No WCT.</li> </ul>
Known non-native wildlife species	<p>Possibly occasional mountain goats from introduced population to south; this species is native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented.</p> <p>No other non-native terrestrial wildlife species documented.</p>

Plant and Animal Communities	Composition
	Likely non-native trout present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 93. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Nearly 100% of this area has never been impacted by timber harvest. A trace amount of acreage (0.05 acres) was impacted by a commercial thin in 1974 – this is a tiny mapping sliver on the boundary.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of CR1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 49%, Class 2: 51%; Impacts related primarily to areas downstream of the polygon, but area is heavily impacted by grazing and motorized travel.
Miles of motorized road/trail within 300' of streams	0.23 miles, some motorized routes on east side and north-western corner of polygon.
Noticeable wildfire suppression impacts	No noticeable evidence of wildfire suppression impacts.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 94. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	There are essentially no harvest or prescribed fire treatments in this area, aside from a tiny mapping sliver (0.04 acres) impacted by a commercial thin in 1974.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None present.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 2 miles of fencing and 2 stock water tanks within CR1.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Heavily used hunting camp in Big Elk Creek. Minor dispersed camp sites scattered throughout the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.



Improvement Type	Presence and extent of departure from naturalness
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Checkerboard ownership north of the polygon receives a lot of use during hunting season.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Only one recorded cultural resource is known in this polygon. This site represents a relic of past occupation, however it most likely does not take away from the naturalness.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest plan.
Number of miles of maintenance level 1 road templates.	0.1 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 95. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Motorized use along the open roads in the eastern part of the polygon. Cherry stem roads.
Area available for winter motorized opportunity	The western 1/3 of the polygon in Middle Fork of Cottonwood Creek if available for over the snow motorized vehicles both on and off the road system.
Proximity to private lands and non-Forest Service roads.	Polygon bordered on north and east by private ranch lands. Checkboard on north side is busy during hunting season. Large inholding near Forest Lake on the west side.
Proximity to developed recreation sites outside of the polygon area.	Forest Lake campground is located to the west of the polygon.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 96. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Most of the polygon is available for primitive and semi-primitive non-motorized recreation in the summer.
Primitive and semi-primitive non-motorized winter recreation.	Eastern 2/3 of the polygon is available for primitive and semi-primitive non-motorized recreation in the winter.



Measures	Descriptions and Locations
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, hunting, fishing, dispersed camping, and wildlife viewing. Snowmobiling in the western portion of the polygon.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 97. Size and Description**

Size of Polygon	Description
25,605 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 98. Features present**

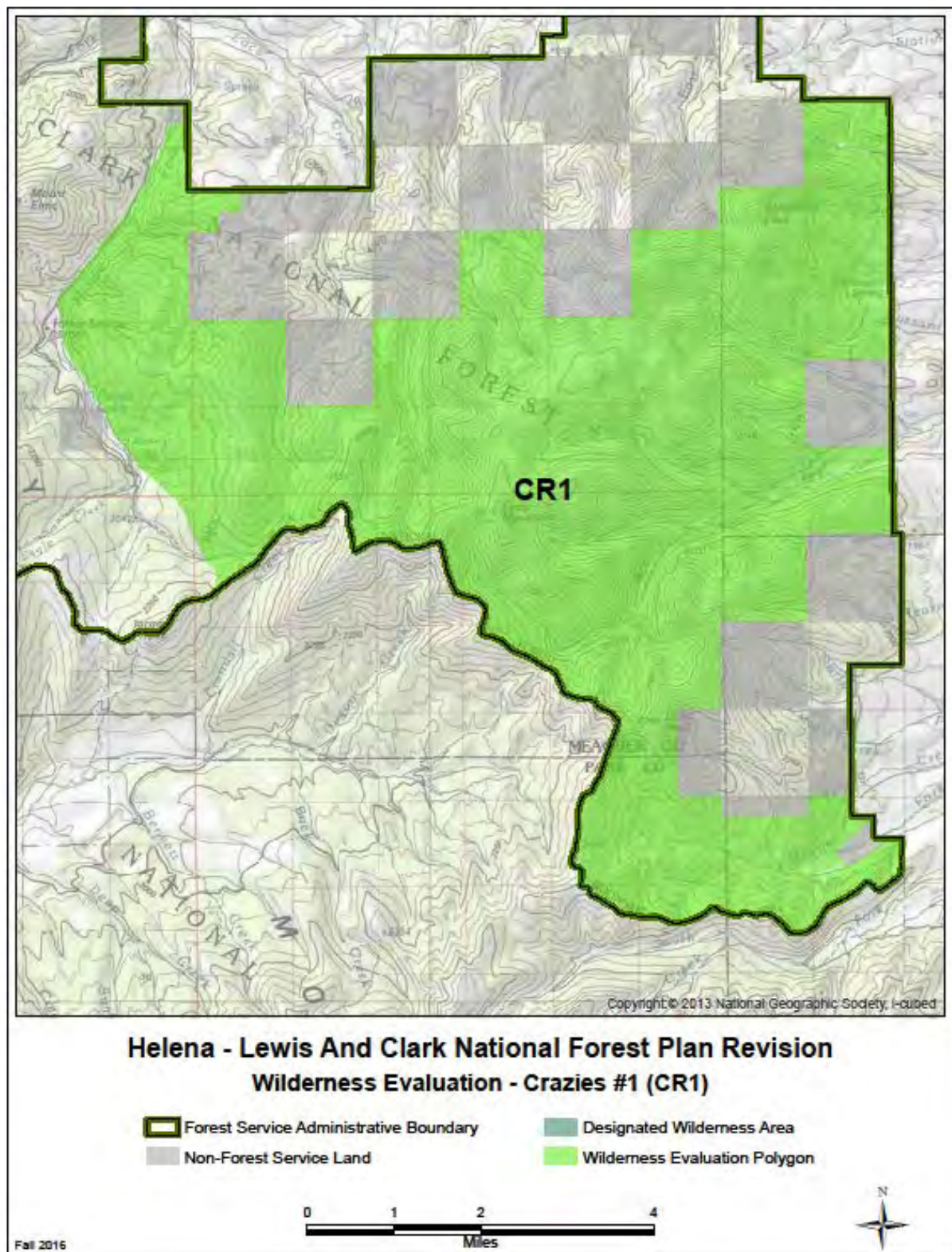
Features	Description and scale
Rare plant communities	The only potential plants of conservation concern that are known to be present in this area are five needled pines: <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas. Potential species of conservation concern and/or state at risk species: harlequin duck No rare aquatic species.
Rare ecosystems	Whitebark pine and limber pine ecosystems are considered relatively rare and important ecosystem components on the HLC NF. Whitebark pine is a candidate species for listing under the ESA. No WCT populations.
Outstanding landscape features	Bare, rocky, and high mountain peaks.
Historic and cultural resource sites	The one recorded cultural resources and the surrounding landscape have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None known.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 99. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Irregular shaped polygon that abuts checkerboard ownership patterns on the north and the east boundaries. Southern boundary with the Gallatin National Forest.

<b>Factors</b>	<b>Description and scale</b>
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Checkerboard ownership to the north and the south east but none within the polygon.
Management of adjacent lands	Polygon surrounded by large ranchlands on the north and east, Gallatin National Forest to the south, and HLC NF to the west.



## Bald Ridge Area (CR3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 100. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Lodgepole pine and lodgepole pine mixes are the most common dominance types, representing about 33% of the area. Douglas-fir and Douglas-fir mixes are present on 25%. Dry grasslands also make up about 25%. Subalpine fir and Engelmann spruce mixes are fairly common (9). Whitebark pine dominates on about 3%, and limber pine on about 4%. Trace amounts of other dominance types can also be found, including shrublands, mesic grasslands, and sparsely vegetated (scree) areas.
Potential vegetation types	The most common potential vegetation types are cool moist forests (44%), with warm dry forest potential types also common (21%). Cold forest potential types, where whitebark pine is most likely to thrive, are found on just over 9%. Dry and mesic grassland types together represent about 23%. Very small amounts of shrubland, riparian, and sparse potential types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, there are no acres within CR3 associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 6000 acres potential lynx habitat, with over 3000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 6900 acres of goshawk potential nesting habitat indicates presence of mature forest; at least 3 known nesting territories. Roughly 100 acres possible old growth habitat and an additional &gt; 7000 acres potential as identified from aerial imagery. Both goshawk habitat and potential old growth habitat increase in value to wildlife in combination with similar habitat in NF lands immediately east and to west of this WE polygon.</li> <li>• Approximately 3300 acres secure elk habitat. Roughly 9000 acres elk winter habitat contiguous with additional winter range on adjacent non-NF land; northern half of this polygon potential elk winter range. Roughly 5800 acres mule deer winter range contiguous with winter range on non-NF lands. Possible moose presence in riparian/wetlands.</li> <li>• Functioning alpine habitat: Over 4000 acres potential wolverine habitat.</li> <li>• No known WCT.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 101. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	The only harvest found in the FACTS database for this area is about 40 acres of salvage in 1990, representing less than 1% of the area. However, additional harvests occurred on formerly private lands in this polygon which were acquired by the FS in a land exchange; these activities are not found in the database because they were not FS lands when the treatment occurred. If carried forward, additional work may need to be done to identify these areas and determine if they are still substantially noticeable; and, if so, exclude from the area potentially suitable for wilderness
% of area without known invasive weeds	According to data as of 2/10/2016, 100% of CR3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 55%, Class 2: 45%, Impacts in Class 2 watersheds area primarily not for impacts in the polygon, but area is heavily grazed.
Miles of motorized road/trail within 300' of streams	5.7 miles
Noticeable wildfire suppression impacts	No evidence of wildfire suppression impacts.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 102. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	The only records of vegetation management in this area is a 40 acre stand which had a salvage harvest in 1990, followed by pile burning. These activities represent less than 1% of the area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None present.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 3/4 mile of fencing and 12 stock water tanks within CR3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	One outfitter guide camp in Box Canyon. Moderate number of dispersed recreation camping sites uses during hunting season. Several authorized ATV trails throughout the entire polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Two Dot high voltage powerline on the northern boundary, outside of the polygon, but visible from within it. Pipelines associated with range water line developments.
Presence of watershed treatment areas including contouring, diking, and channeling.	Old water line ditch in Box Canyon in western edge of the polygon.
Lands adjacent to development or activities that impact opportunities for solitude.	Surrounded by ranchlands on the west and north.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Two recorded cultural resources are within this polygon, however there is the high probability of un-recorded cultural resources which represent structures, dwellings or other relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	Old historic logging roads scar the landscape on the interior of the polygon. These are result from logging on private lands that the FS acquired in a land exchange. One recorded historic trail.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 103. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Entire polygon is bisected by seasonal ATV trails and loop trails.
Area available for winter motorized opportunity	The southern 1/3 of the polygon is open to snowmobile use.
Proximity to private lands and non-Forest Service roads.	Bordered by private lands on the west and north sides of polygon.
Proximity to developed recreation sites outside of the polygon area.	Forest Lake campground to the east but is about 3 miles away from the polygon.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 104. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Very little of the polygon is available for primitive and semi-primitive non-motorized recreation in the summer.
Primitive and semi-primitive non-motorized winter recreation.	The northern 2/3 of the polygon is available for primitive and semi-primitive non-motorized recreation in the winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Authorized ATV and motorcycle riding, outfitting, horseback riding, hunting, fishing, limited hiking, dispersed camping during hunting season. Low to moderate level of snowmobiling in the winter.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 105. Size and Description**

Size of Polygon	Description
13,210 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 106. Features present**

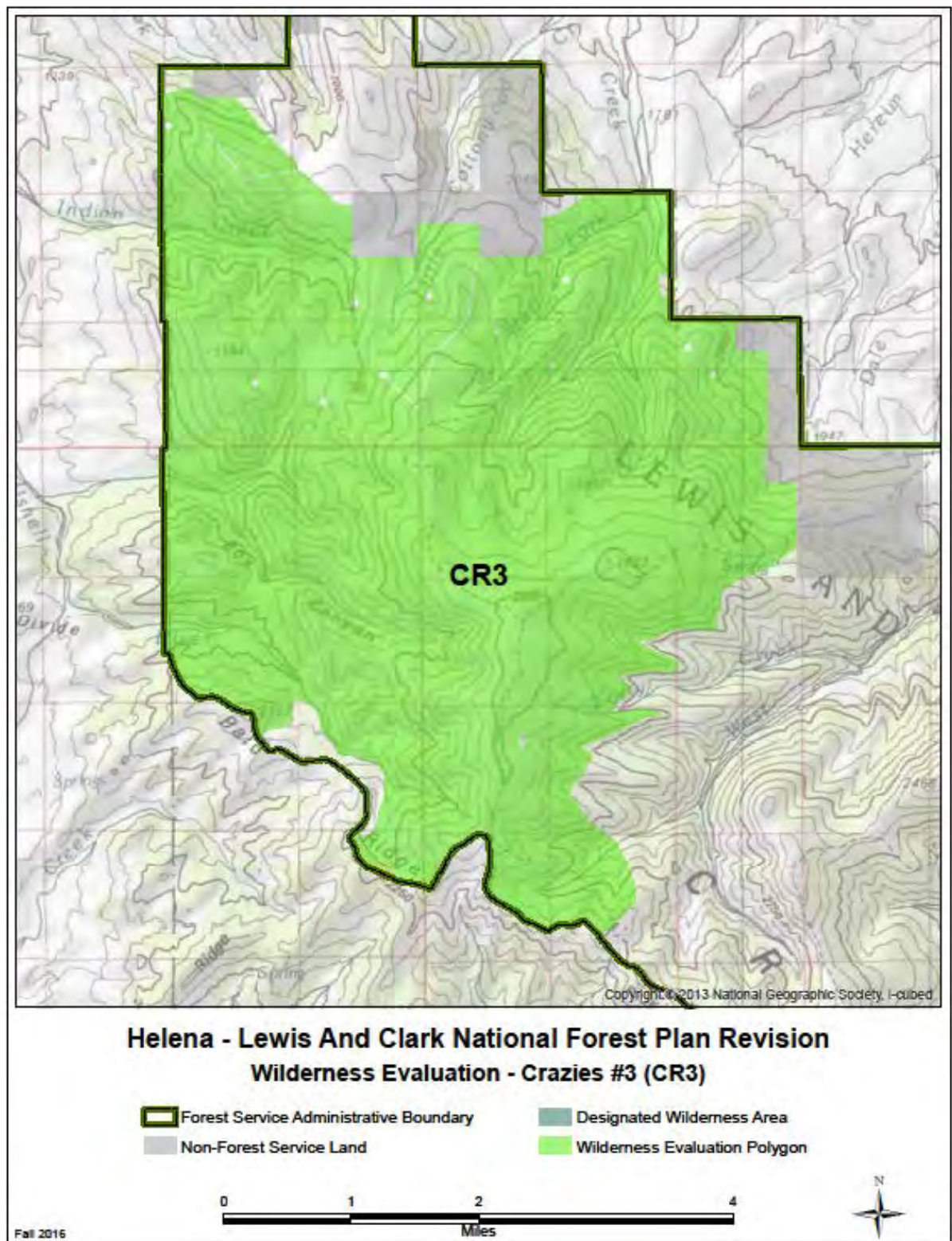
Features	Description and scale
Rare plant communities	The only known potential plant species of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: Occasional, transient presence of lynx possible, but area is not within lynx critical habitat or occupied areas. Potential species of conservation concern and/or state at risk species: None documented No rare aquatic species known
Rare ecosystems	Whitebark pine and limber pine are considered relatively rare but important ecosystem components on the HLC NF. Whitebark pine is a candidate species for listing under the ESA. No rare aquatic ecosystems
Outstanding landscape features	Big, bald, grassy ridge.
Historic and cultural resource sites	All recorded sites and the surround landscape have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None known

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 107. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Large undeveloped area on the northwest edge of the Crazy Mountains.
Legally established rights or uses within the area	None known within the polygon.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	No private land inholdings.
Management of adjacent lands	Large private ranch land on the west and north, Gallatin National Forest to the south, and HLC NF to the east.





## Divide Geographic Area

### Sweeney Creek Area (D2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 108. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance type in this area is Douglas-fir and Douglas-fir mixed forest, covering about 49% of the area. Lodgepole pine and lodgepole pine mixes are also abundant, growing on about 33% of the area. Ponderosa pine is also common, found on about 11%. About 4% of the area is made up of dry grasslands. Very small amounts of other dominance types are present (about 1% or less each), including mesic grasslands, shrublands, Engelmann spruce, and aspen.
Potential vegetation types	Warm dry forest potential vegetation types are the most dominant, representing about 89% of the area. This is consistent with the abundance of Douglas-fir and ponderosa pine forests. Cool moist forest potential types are found on just over 4% of the area, and grassland potential types represent roughly 4%. Small amounts of shrubland and riparian potential types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 122 acres within D2 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest but largely dry types: Observed probable breeding flammulated owl indicates areas of open mature Ponderosa pine. Roughly 5900 acres of goshawk potential nesting habitat. Only 400 acres potential lynx habitat, with only about 200 acres mature multi-storied (optimal lynx . winter forage). Goshawk habitat increases in value to wildlife in combination with similar habitat in area to west (WE polygon D13). Roughly 700 acres possible old growth habitat.</li> <li>• Approximately 4000 acres secure elk habitat, immediately adjacent to winter range on non-FS system lands. Possible moose presence in riparian/wetlands.</li> <li>• No WCT.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 109. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Over 99% of the area has not been impacted by past timber harvest. Records show just one harvest has occurred, 58 acres of single-tree selection in 1981. It is possible that historic harvests occurred prior to detailed record keeping which began in the 1950's.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.5% of D2 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 71%, Class 3: 29%; however, impacts occur downstream of the polygon.
Miles of motorized road/trail within 300' of streams	3.6 miles
Noticeable wildfire suppression impacts	No fire occurrence since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 110. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	Less than 1% of the area (58 acres) was impacted by a single tree selection harvest in 1981; this treatment was determined to be no longer substantially noticeable. About 2% of the area has been treated with prescribed fire treatments, including broadcast burning, burning of piles, and underburning which occurred from 1981 to 2006. These treatments were also determined to be no longer substantially noticeable on the landscape. Over 97% of the area has been unaffected by treatments.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	The northern portion of this polygon is within the historic Austin Mining District. High potential for unrecorded past mining activity.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 3 miles of fencing within D2.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping along the south western edge of the polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Pipeline and railroad on the northern boundary noticeable from within the polygon.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Railroad to the north. Open roads surrounding the polygon. Highway 12 to the south is noticeable from within the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 3 recorded cultural resources within this polygon, all represent structures, dwellings or relics of past occupation. The northern portion of this polygon is within the historic Austin Mining District. High potential for unrecorded past mining activity.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	1.4 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	A portions of the historic Mullan Road runs through the northern portions of this polygon. There is also the high potential of unrecorded historic routes associated with past mining.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 111. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	None available within the polygon.
Area available for winter motorized opportunity	Closed to snowmobiling within the polygon.
Proximity to private lands and non-Forest Service roads.	Private lands surround the polygon on north, east, and south.
Proximity to developed recreation sites outside of the polygon area.	Snowmobile parking lot of Sweeney Creek and Austin Road.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 112. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Highway 12 noise affects the opportunities for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Highway 12 noise and snowmobiling on open roads affects the opportunities for primitive and semi-primitive winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Dispersed camping, hiking, mountain biking, and hunting.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 113. Size and Description**

Size of Polygon	Description
7,978 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 114. Features present**

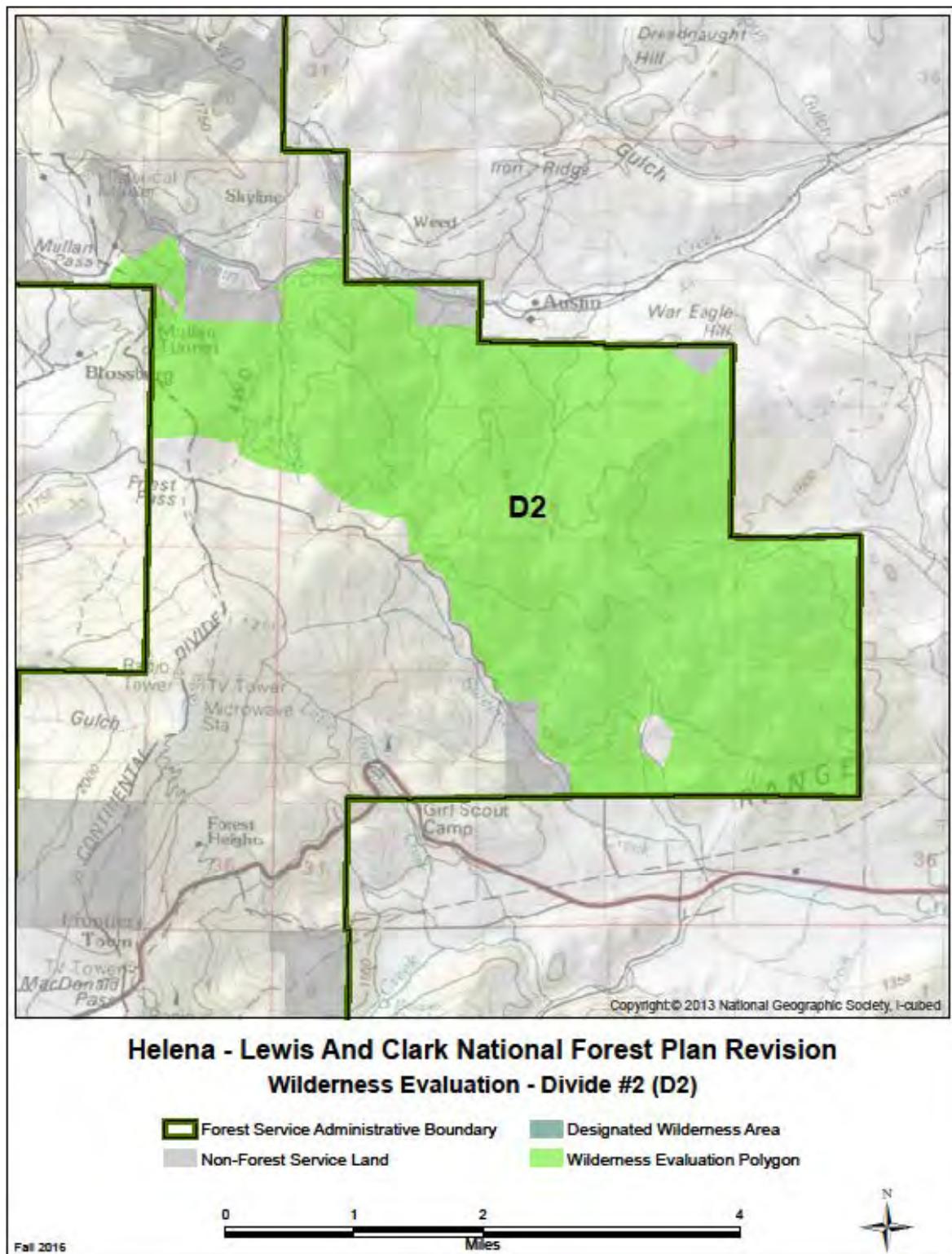
Features	Description and scale
Rare plant communities	No known potential plant species of conservation concern.
Rare animal species or communities	Federally listed species: Lynx critical habitat, and within occupied area; lynx probably at very low density. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: Flammulated owl probable breeding. Wolverine documented although little if any identified breeding habitat. No rare aquatic species present.
Rare ecosystems	No known rare vegetation communities in this area. No rare water related ecosystems.
Outstanding landscape features	None.
Historic and cultural resource sites	The historic Mullan Road has high scientific, educational and historic value. The remaining recorded cultural resources have the potential for scientific, educational and historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 115. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Large irregular-shaped polygon north and east of Sweeney Creek and Priest Pass.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private lands along edges. No private inholdings.
Management of adjacent lands	Private lands to the north, south, east and a portion of the west. Forest Service system lands with past timber harvest and road building to the southwest.





## Blackfoot Meadows Area (D3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 116. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance type in this area is lodgepole pine forests and lodgepole pine mixes, which are found on over 60% of the area. Douglas-fir and Douglas-fir mixed forests are also common, found on over 17% of the area. Subalpine fir and Engelmann spruce mixes make up the third most common vegetation dominance type, representing about 13% of the area. Dry grasslands are present on about 6%. Very small amounts (1% or less) of other dominance types are present, including bunch grasses and mesic grasses, shrublands, sparsely vegetated areas, and whitebark pine mixes.
Potential vegetation types	Cool moist forest potential vegetation types dominate the area, representing about 69% of the area. Warm dry forest types are also common, on 23%. Mesic grassland potential types are found on about 4%. Small amounts of other potential vegetation types are also present, including cold forest types (where whitebark pine is most likely to thrive), shrublands, and sparsely vegetated areas.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 112 acres within D3 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 21,000 acres potential lynx habitat, with about 5600 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx). Roughly 22,000 acres of goshawk potential nesting habitat. Roughly 2100 acres possible old growth habitat in patches of varying size.</li> <li>• Approximately 23,000 acres secure elk habitat. Possible moose presence in riparian/wetlands.</li> <li>• Functioning subalpine/alpine habitat: Approximately 6000 acres potential wolverine habitat.</li> <li>• Potential Bull Trout in Little Blackfoot River, WCT in Little Blackfoot River, Monarch Creek, No Grass Creek, Bison Creek, Ontario Creek, Larabee Gulch, Conners Gulch, and North Fork Spotted Dog Creek.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 117. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Records show that one small area (15 acres) in this polygon were harvested with a clearcut in 1939. This represents less than 0.5% of the area overall.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.6% of D3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 67%, Class 3: 33% (Most class 3 impacts are outside of the wilderness polygon)
Miles of motorized road/trail within 300' of streams	3.4 miles
Noticeable wildfire suppression impacts	No fire occurrence since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 118. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	In total, about 16% of this polygon has been impacted by either harvest or prescribed fire. The small 15-acre clearcut that occurred in 1939 was determined to be no longer substantially noticeable due to the age of the regeneration, and impacted less than .05% of this area. Fairly extensive underburns have occurred in this area, across over 4600 acres or 16% of the area. These burns occurred in 1987 and 1993, and were generally focused in grasslands. These treatments were determined to be no longer substantially noticeable on the landscape.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	This polygon is within the Elliston Historic Mining District with numerous abandoned mine features and several active mining claims. Little Blackfoot River on State 303(d) list for impacts that may be from old mining activities.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1.2 miles of fencing and 5 stock water tanks within D3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping throughout.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.
Presence of watershed treatment areas including contouring, diking, and channeling.	None
Lands adjacent to development or activities that impact opportunities for solitude.	Activities along the Little Blackfoot road are noticeable with the polygon. Some influence from Highway 12 on the northern boundary of the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 8 recorded cultural resources and the high potential for unrecorded historic mining features associated with the Elliston Mining District. All of the recorded sites are relics of past occupations and many have standing structures.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	2.4 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	One recorded historic trail (7 miles) is within the polygon. There is a high probability of unrecorded routes associated with past mining.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 119. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Lindberger Springs trail is motorized. Bulk of the area is nonmotorized.
Area available for winter motorized opportunity	Lindberger Springs trail is part of the groomed snowmobile system. Bulk of the area is nonmotorized.
Proximity to private lands and non-Forest Service roads.	Private inholding along Little Blackfoot Road.
Proximity to developed recreation sites outside of the polygon area.	Kading Campground, Kading Rental Cabin, Blackfoot Meadows Trailhead, Monarch Creek Trailhead and Larabee Gulch Trailhead.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 120. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Entire polygon south of the Little Blackfoot drainage has good opportunities for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Entire polygon south of the Little Blackfoot drainage has good opportunities for primitive and semi-primitive winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, hunting, fishing, mountain biking, and camping.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 121. Size and Description**

Size of Polygon	Description
29,066 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

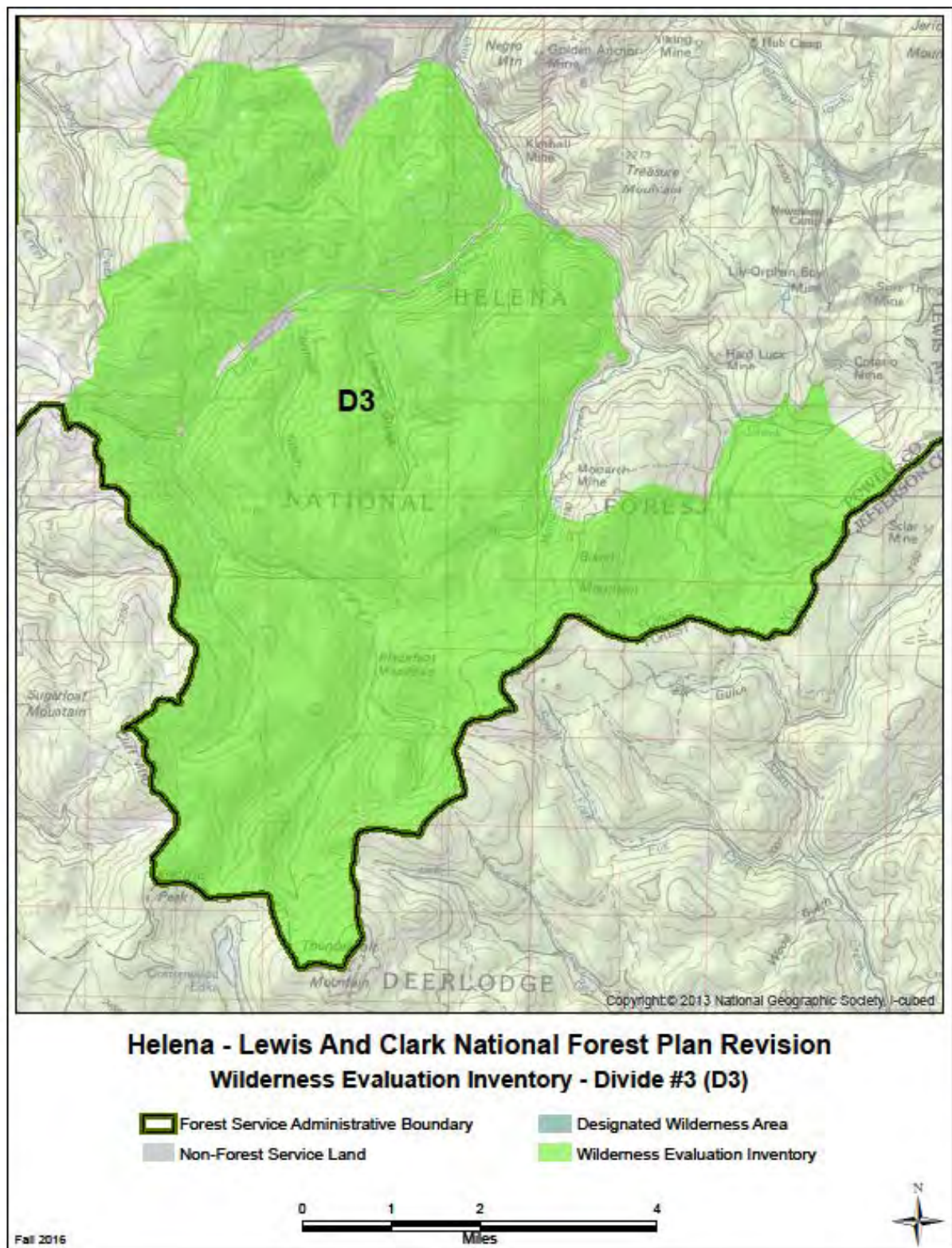
**Table 122. Features present**

Features	Description and scale
Rare plant communities	The only known potential plant species of conservation concern that occur in this area are <i>Botrychium spp.</i> and <i>Pinus albicaulis</i> .
Rare animal species or communities	Wolverine documented although little if any identified breeding habitat. Lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Bull Trout and WCT present, see above.
Rare ecosystems	Whitebark pine is a relatively rare and important ecosystem component which is found in very small amounts in this area. Whitebark pine is a candidate species for listing under the ESA. No rare aquatic ecosystems
Outstanding landscape features	Blackfoot Meadows, Bison Mountain, Thunderbolt, Electric Peak and Cliff Mountains.
Historic and cultural resource sites	All recorded cultural resources have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Little Blackfoot on list of eligible WSRs, it is listed for outstanding WCT fishery, potential bull trout fishery, and cultural resources..

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 123. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Large, irregular-shaped polygon that follows the boundary with the Beaverhead-Deerlodge National Forest to the south and incorporates Electric Peak, Thunder Bolt Mountain, and Bison Mountain. Area surrounds landscapes around the Little Blackfoot road but does not include lands immediately adjacent to the road which were excluded from the inventory.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private inholding along Little Blackfoot road.
Management of adjacent lands	Beaverhead Deerlodge National Forest (B-D NF) to the southwest and southeast. The B-D NF Electric Peak Recommended Wilderness area is adjacent to the polygon on the South. Timber harvesting and road building to the northeast and northwest on FS system lands.



## Colorado Mountain Area (D5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 124. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Douglas-fir forests (pure and mixed) are the most common dominance type in the area, covering about 63%. Lodgepole pine forests are also common, found on 33%. Dry grasslands can be found on about 4%. Small amounts of other dominance types can also be found, generally 2% or less, including mesic grasslands, shrublands, ponderosa pine, subalpine fir, Engelmann spruce, cottonwood, and aspen.
Potential vegetation types	The most common potential vegetation type in this area are warm dry forest types, covering 85%. Cool moist forest types are found on about 8%, and grasslands potential types make up nearly 5%. Small amounts of other potential types are also present, including shrublands and riparian types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 112 acres within D5 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Observed breeding flammulated owl indicates areas of open mature Ponderosa pine. Roughly 1300 acres potential lynx habitat, with only about 750 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx); habitat has value largely when connected to more extensive lynx habitat to south of this polygon. Roughly 6900 acres of goshawk potential nesting habitat indicates presence of mature forest; at least one known nest territory. Roughly 500 acres possible old growth habitat in patches of varying size.</li> <li>• Approximately 7300 acres secure elk habitat. Possible moose presence in riparian/wetlands.</li> <li>• No WCT.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 125. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Nearly 100% of the area has had no timber harvest. Records show some very small areas of commercial thin, improvement cutting, and single-tree selection which occurred in 1968 and 1972, and amounted to about 6 acres total, or .08% of the area.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.6% of D5 is not associated with invasive plant inventories.



Measures	Outcome
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 10%, Class 3:90%, Class 3 is due to mining impacts primarily located downstream from the polygon.
Miles of motorized road/trail within 300' of streams	0.13 miles
Noticeable wildfire suppression impacts	No fire occurrence since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 126. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	Roughly 6 acres of this area has been harvested in the past, in 1968 and 1972, with intermediate and uneven-aged cuts which left many residual trees. Due to the type and age of treatment, these treatments were considered to be no longer substantially noticeable and make up only 0.08% of the area. There are no records of past prescribed fire treatments.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	This polygon straddles the divide between the Helena, Rimini and Clancy Historic Mining Districts. There is a high probability of un-recorded abandoned mines and/or historic mine features, including 2 mapped abandoned mine points within polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 2 miles of fencing and 3 stock water tanks within D5.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping in southern half of the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None known.
Presence of watershed treatment areas including contouring, diking, and channeling.	None
Lands adjacent to development or activities that impact opportunities for solitude.	Highway 12 to the north of the polygon and can be heard from within the polygon. Residential area in Colorado Gulch may be seen and heard from within the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are only two recorded sites within this polygon, however there is a high probability of un-recorded historic mine site and features. Portions of the Historic Red Mountain Flume run through this polygon. This flume is still used as part of the municipal water system for the City of Helena.

Improvement Type	Presence and extent of departure from naturalness
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	2.4 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic routes, however there is a high probability of un-recorded routes associated with past mining.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 127. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	No motorized opportunities present in summer.
Area available for winter motorized opportunity	No motorized opportunities present in winter.
Proximity to private lands and non-Forest Service roads.	Abuts private/BLM land on north and southeast sides
Proximity to developed recreation sites outside of the polygon area.	Moose Creek Picnic area on Tenmile road to the west. Blackhall Meadows Trailhead on southeastern flank. Park City Trailhead on northeastern boundary.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 128. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Entire polygon available for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Entire polygon available for primitive and semi-primitive winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, snowshoeing, cross country skiing, mountain biking, and hunting.



Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 129. Size and Description**

Size of Polygon	Description
8,168 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 130. Features present**

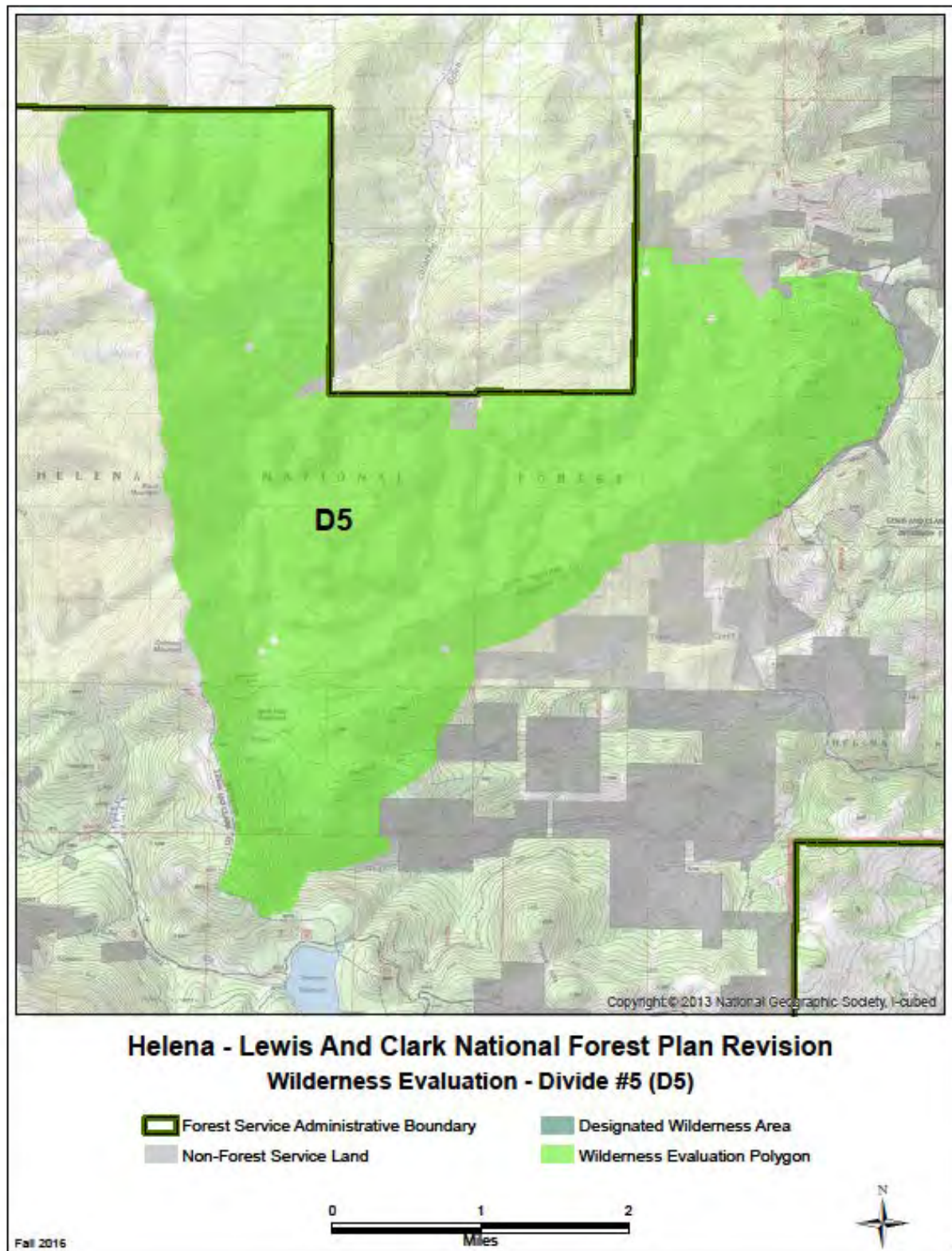
Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern that are known to occur in this area are <i>Cypripedium parviflorum</i> .
Rare animal species or communities	Federally listed species: lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: flammulated owl, wolverine documented No rare aquatic species.
Rare ecosystems	There are no know rare terrestrial ecosystems in this area. No rare aquatic ecosystems present.
Outstanding landscape features	Black Mountain, Colorado Mountain.
Historic and cultural resource sites	All recorded sites within this polygon have the potential for scientific, educational and historic value. This is especially true for the Red Mountain Flume since it is still in operation.
Research Natural Areas	None present.
High quality water resources or important watershed features	Part of municipal watershed for the City of Helena.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 131. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Irregular polygon. The northern, eastern, and southern boundaries are influenced by private lands and BLM parcels. The western boundary is formed by the outer boundary of the superfund site.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Superfund site to the west but not within the polygon.
The presence and amount of non-Federal land in the area	Two private land parcels along the northern border of the polygon in Colorado Gulch.

Factors	Description and scale
Management of adjacent lands	Private residential lands and BLM parcel to the north. Areas influenced by historical mining surround this polygon.



## Continental Divide North Area (D13)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 132. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Two primary dominance types cover most of this area: Douglas-fir and Douglas-fir mixed forest (46%); and lodgepole pine and lodgepole pine mixed forest (47%). About 3% of the area is covered by dry grassland. Very small amounts, 1% or less, are represented by other dominance types including mesic grasslands, shrublands, ponderosa pine, subalpine fir, Engelmann spruce, whitebark pine, aspen, and sparsely vegetated areas.
Potential vegetation types	The area is fairly evenly split between the warm dry forest potential types (49%), and the cool moist forest types (46%). All other potential vegetation types make up about 1% or less of the area each, and include cold forest (where whitebark pine may thrive), xeric grassland types, mesic grassland types, xeric shrub types, riparian types, and sparsely vegetated areas.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 38 acres within D13 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 2200 acres potential lynx habitat, with nearly 1000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 3500 acres of goshawk potential nesting habitat; goshawk habitat increases in value to wildlife in combination with similar habitat in area to east (WE polygon D2). Roughly 1100 acres possible old growth habitat. Observed probable breeding flammulated owl indicates areas of open mature Ponderosa pine.</li> <li>• Approximately 900 acres secure elk habitat. Possible moose presence in riparian/wetlands.</li> <li>• Potential WCT in Rich Spur Creek.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 133. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There is one record of a past harvest in this area; in 1981 about 82 acres had a single-tree selection harvest. This impacted nearly 2% of the area but is no longer substantially noticeable. 98% of the area has not been impacted by timber harvest.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.1% of D13 is not associated with invasive plant inventories.

Measures	Outcome
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2:11%, Class 3: 89% impacts are downstream of the polygon in the superfund site.
Miles of motorized road/trail within 300' of streams	0.11 miles
Noticeable wildfire suppression impacts	No fire occurrence since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 134. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	In addition to the 82-acre single tree selection cut in 1981 which impacted 2% of the area, roughly 72 acres have pile burning treatments which occurred from 1981 to 2005 which impacted another 2%. A total of about 96% of the area as currently drawn has not been impacted by vegetation treatments. These treatments were determined to be no longer substantially noticeable. A scattering of past timber harvest do exist within the perimeter of the area which are substantially noticeable, along with loop roads and treated corridors. These areas are excluded from the wilderness inventory, and appear as cherry stems and donut holes in the polygon.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Mac Pass Communication Site is a complex communication site with numerous structures and towers. It is visible from within the polygon. Open road accesses site.
Areas of mining activities including both abandoned and active mines.	Abandoned mine sites are scattered throughout the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1.6 miles of fencing within D13.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping near Priest Pass.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	The area has numerous utility corridors related to the Mac Pass Communication site as well as to the recreation residences in the southern portion of the polygon.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	There is a permitted shooting range on the southeast boundary. Highway 12 makes up the south boundary of the polygon and is both heard and visible from within the polygon.

Improvement Type	Presence and extent of departure from naturalness
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Buildings associated with the shooting range and the recreation residences are visible from locations within the polygon. Three recorded cultural resources which represent structures, dwellings or other relics of past occupations are within this polygon.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	2.2 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known. High potential of unrecorded historic routes associated with past occupation.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 135. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Road to the communication site is open for summer use.
Area available for winter motorized opportunity	Motorized equipment used on the Mac Pass groomed ski trails. Area is not open for snowmobiling.
Proximity to private lands and non-Forest Service roads.	Frontier Town is a private inholding in the south part of the polygon.
Proximity to developed recreation sites outside of the polygon area.	Nordic Ski Trail system parking lot in southern boundary off of Highway 12. Prickly Pear shooting range in the southeast portion of the polygon. Sweeney Creek snowmobile parking area south east of the polygon.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 136. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	A portion of the CDNST within the polygon is non-motorized. Opportunities for primitive and semi-primitive non-motorized recreation occur in areas away from the communication site, shooting range, and the Priest Pass road.
Primitive and semi-primitive non-motorized winter recreation.	Opportunities for primitive and semi-primitive non-motorized winter recreation occurs in areas away from the communication site, shooting range, and the Mac Pass groomed cross country ski trails.

Measures	Descriptions and Locations
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking the CDNST, mountain biking, and cross country skiing.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 137. Size and Description**

Size of Polygon	Description
4,123 acres	This polygon is less than 5,000 acres in size. Year-round motorized access to the communication site and the groomed cross country ski trails in the core portion of the polygon would make it difficult to manage as wilderness. Additionally, the sights and sounds from Highway 12 reduce opportunities for solitude within the polygon.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 138. Features present**

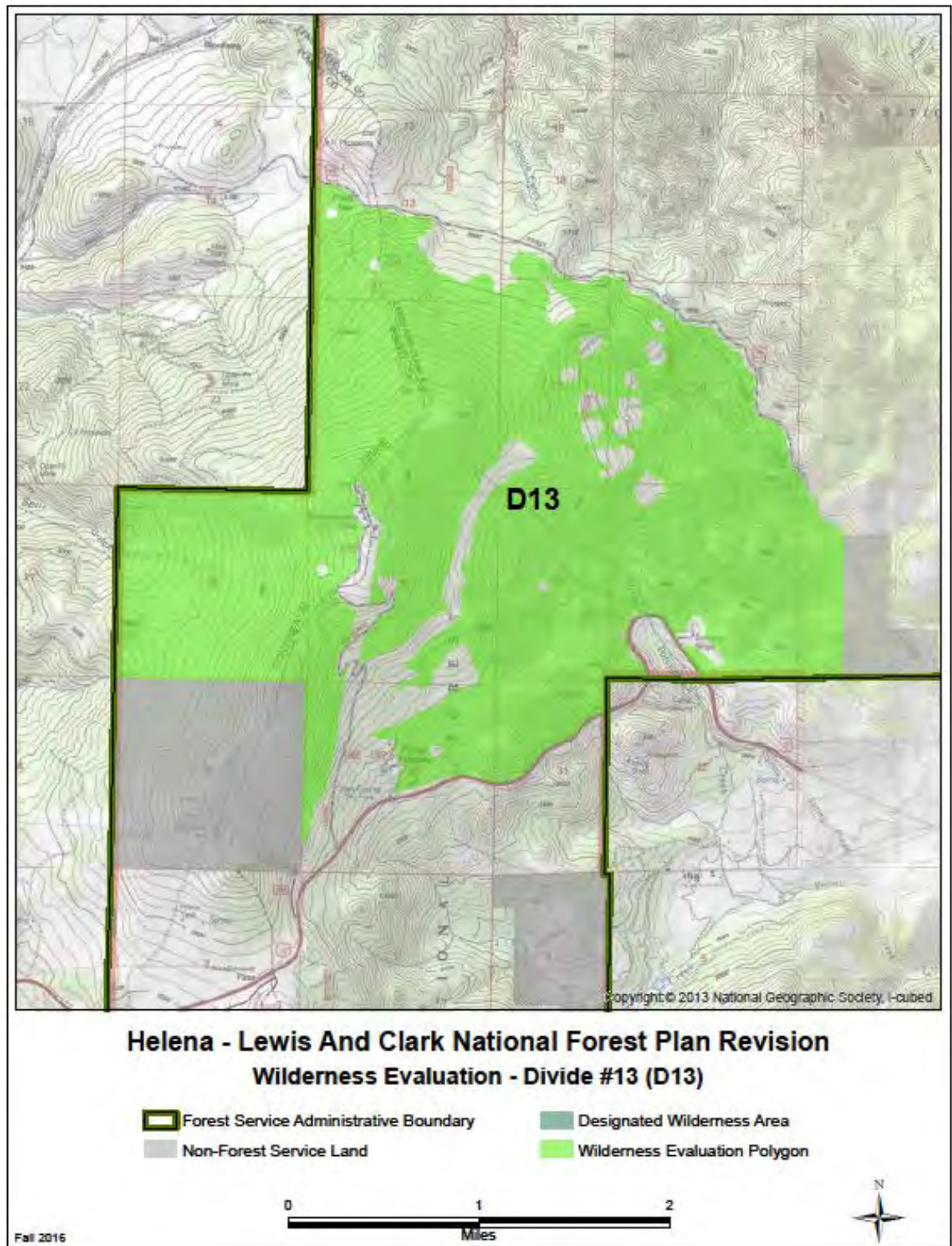
Features	Description and scale
Rare plant communities	No known potential plant species of conservation concern are known to occur in this area, aside from very small amounts of <i>Pinus albicaulis</i> indicated by VMap.
Rare animal species or communities	Federally listed species: Lynx critical habitat, and within occupied area; lynx probably at very low density. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: flammulated owl probable breeding. Wolverine documented although little if any identified breeding habitat.
Rare ecosystems	There are no known rare ecosystems, aside from the small occurrence of whitebark pine which is a relatively rare and important ecosystem component on the HLC NF. Whitebark pine is a candidate species for listing under the ESA. No known rare aquatic ecosystems.
Outstanding landscape features	Continental Divide
Historic and cultural resource sites	All recorded cultural resources in this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 139. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Irregular polygon shape. The outer boundary is formed by private lands on the west and portions of the south and east. An open road forms the boundary on the north and east and the boundary of the superfund site forms much of the southern boundary.
Legally established rights or uses within the area	Communication site is significant to Helena, the county, and the state.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Frontier Town in the southern portion of the polygon.
Management of adjacent lands	Superfund site to the south. Private land for agriculture purposed to the south and southwest. Forest Service system lands to the north and northeast.





## Elkhorns Geographic Area

### Eagle Basin Area (E1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 140. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance type in this area is lodgepole pine and lodgepole pine mixes, which cover about 50%. A substantial portion of this area burned in the Warm Springs fire of 1988, and the majority of regeneration is lodgepole pine. Douglas-fir and Douglas-fir mixed forests are also common at lower elevations, covering about 18% of the area. Subalpine fir and Engelmann spruce forests can also be found on 14%. Sparsely vegetated areas, such as scree/rock, are present on about 9%. Dry grasslands represent 5%. Small amounts of other dominance types, covering about 1% or less each, also occur, including mesic grasslands, shrublands, ponderosa pine, whitebark pine, aspen, juniper, and trace amounts of limber pine.
Potential vegetation types	This area is dominated by cool moist forest potential vegetation types, which are found on about 49% of the area, and where lodgepole pine, subalpine fir, and Engelmann spruce are most likely found. About 30% of the area has warm dry forest potential vegetation types. A small area, about 6%, has cold forest potential types, where whitebark pine is most likely to thrive. Xeric and mesic grassland potential types together make up about 5%, and sparsely vegetated potential areas about 9%. Trace amounts of shrubland and riparian potential types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 2,812 acres within E1 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 15,000 acres potential lynx habitat, with only about 750 acres mature multi-storied (optimal lynx winter forage (area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 28,000 acres of goshawk potential nesting habitat; at least one known nest territory. Roughly 1100 acres possible old growth habitat in patches of varying size.</li> <li>• Approximately 48,000 acres secure elk habitat. Possible moose presence in riparian/wetlands. Over 22,000 acres bighorn sheep habitat in eastern portion although disease transmission from domestic sheep has caused significant die-offs.</li> <li>• Over 27,000 acres potential wolverine habitat with roughly 3200 acres maternal habitat, but note that this area is not contiguous with other areas of wolverine occupancy.</li> <li>• WCT in multiple drainages: Warm Springs, Dutchman, Prickly Pear, EF McClellan, Tepee, Beaver, Longfellow, Eureka, and SF Crow Creeks.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT

Plant and Animal Communities	Composition
	but not to this mountain range; competition with native bighorn sheep may be an issue. No other non-native terrestrial wildlife species documented. Non-native trout likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 141. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in this area. 100% of the area is unaffected by harvest. Detailed harvest records are available starting generally in the 1950's. Anecdotally it is likely that some historic logging in accessible areas, such as the removal of fuelwood and mining timbers, occurred during initial settlement of the area.
% of area without known invasive weeds	According to data as of 2/10/2016, 95.1% of E1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 99%, Class 3: 1% primarily rated at risk for water quality, aquatic habitat, and road and trail impacts.
Miles of motorized road/trail within 300' of streams	3.5 miles, primarily along eastern and southern edges
Noticeable wildfire suppression impacts	Warm Springs Fire (1988): hand lines still evident in Badger Creek.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 142. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	No modern harvest has occurred in this area. However, about 3,410 acres, or 6% of the area, has had prescribed fire treatments. These treatments include broadcast burning, pile burning, and underburning which has occurred from 1987 to 2005. These activities were determined to not be substantially noticeable, with effects similar to wildfire.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present within the polygon.
Areas of mining activities including both abandoned and active mines.	Mining impacts in multiple watersheds. Middle Fork Warm Springs, Prickly Pear, Wilson, Crow and Beaver Creek are all 303(d) listed for mining impacts/channel modifications. Multiple abandoned mines throughout polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1/2 mile of fencing and 10 stock water tanks within E1.

Improvement Type	Presence and extent of departure from naturalness
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping throughout the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Pipeline located on the western edge of the polygon.
Presence of watershed treatment areas including contouring, diking, and channeling.	None
Lands adjacent to development or activities that impact opportunities for solitude.	Timber harvest, road building, urban interface surrounding the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Twenty-four recorded cultural resources within this polygon. This polygon is also within the Park-Indian Historic Mining district which has numerous associated mining sites and features.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	2.9 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic routes, however there is a high probability of unrecorded routes associated with past mining.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 143. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	No motorized recreation within the polygon.
Area available for winter motorized opportunity	No motorized recreation within the polygon.
Proximity to private lands and non-Forest Service roads.	Two small parcels of private inholdings for mining purposes.
Proximity to developed recreation sites outside of the polygon area.	Pole Creek Trailhead, Tizer Lakes Trailhead, Poe Park Trailhead, Hall Creek Trailhead, Jump Off Trailhead, Eagle Guard Station Rental Cabin, Edith Basin Trailhead, South Crow Lakes Trailhead, Willard Creek Trailhead, and Crow Creek Trailhead.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 144. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Moderate to low motorized access into Tizer Basin for winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, horseback riding, fishing, mountain biking, limited snowmobiling, and camping.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 145. Size and Description**

Size of Polygon	Description
57,279 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 146. Features present**

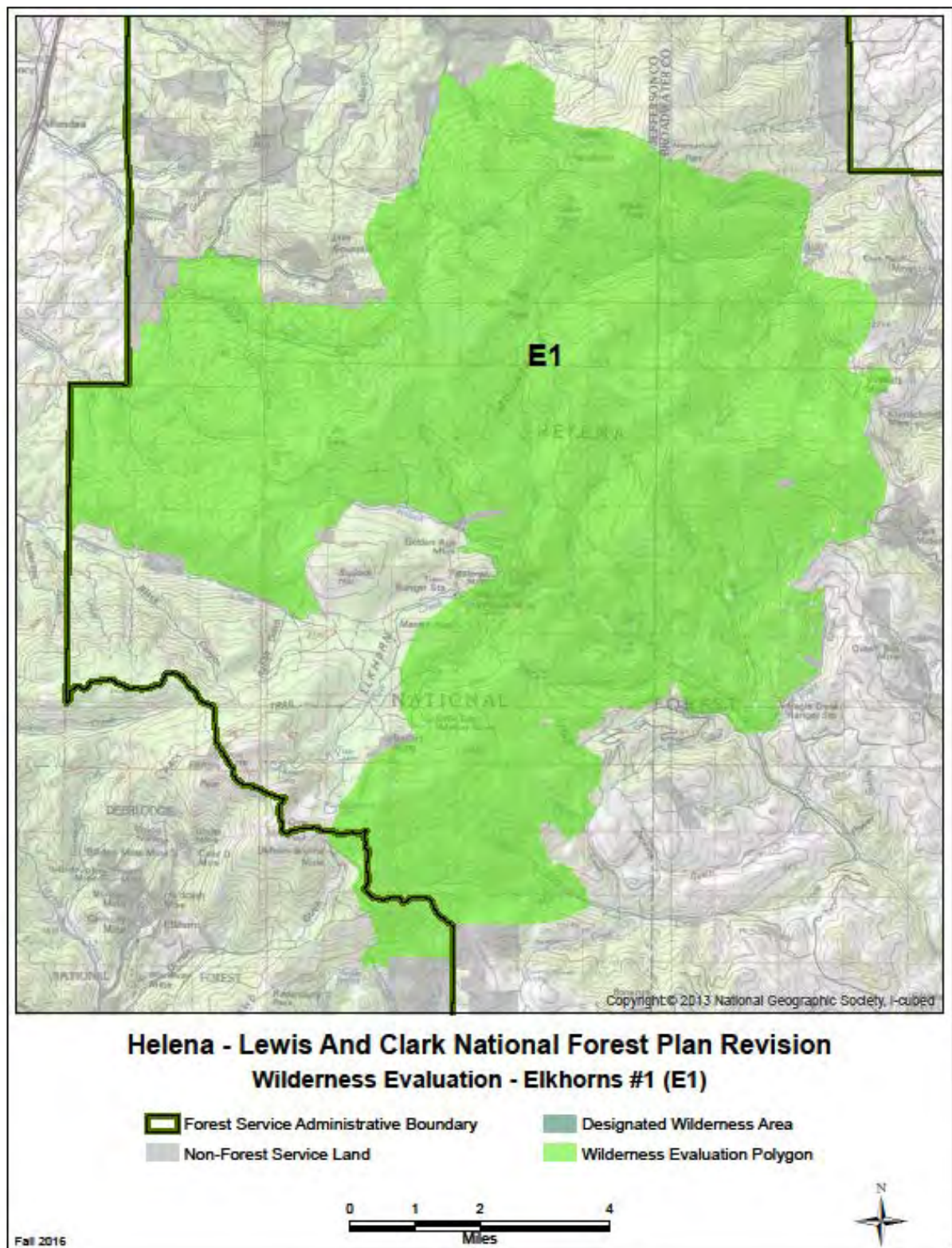
Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Phlox kelseyii</i> var. <i>Missoulensis</i> .
Rare animal species or communities	Federally listed species: Lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: wolverine documented, western toad Several drainages with WCT, see above.
Rare ecosystems	Limber pine, whitebark pine, aspen, and ponderosa pine are all vegetative communities of interest on the HLC NF due to their relatively low abundance and value for wildlife habitat. These communities are present in small amounts in this area. Whitebark pine is a candidate species for listing under the ESA. No rare aquatic ecosystems
Outstanding landscape features	High elevation vistas and Crow Creek waterfalls.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, education or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	McClellan Creek is a municipal watershed for East Helena.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 147. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Large irregular-shaped polygon within the interior of the Elkhorns Mountain range.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Small private inholdings.
Management of adjacent lands	Timber harvest and road building to the southeast, north, and northwest. Mining activities surrounding the polygon.





## Elkhorn Peak Area (E3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 148. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	This area is dominated by lodgepole pine and lodgepole mixed forests (41%) and subalpine fir and Engelmann spruce mixed forests (31%). Douglas-fir and Douglas-fir mixed forests area also common, covering about 23%. Sparsely vegetated areas (such as rock/scree) are found on just under 3%. Very small amounts of other dominance types are also present, representing less than 1% of the area each, including grasslands, shrublands, ponderosa pine, whitebark pine, and aspen.
Potential vegetation types	Most of the area supports cool moist forest potential vegetation types (nearly 76%). Warm dry forest potential types are found on 16%, and cold forest types (where whitebark pine is most likely to thrive) are found on just over 4%. Very small amounts of other potential types are also present, including grassland, shrubland, and riparian potential vegetation types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 237 acres within E3 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 6,000 acres potential lynx habitat, with about 2700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 9200 acres of goshawk potential nesting habitat; at least one known nest territory. A minimum of 6 acres possible old growth habitat; old growth data not available for BDNF portion.</li> <li>• Approximately 8700 acres secure elk habitat, and up to 2700 acres elk winter range contiguous with additional winter range on adjacent non-NF land. Possible moose presence in riparian/wetlands.</li> <li>• Functioning subalpine/alpine habitat: Over 8300 acres potential wolverine habitat with roughly 600 acres maternal habitat, but note that this area is not contiguous with other areas of wolverine occupancy.</li> <li>• WCT in Muskrat and Prickly Pear Creeks.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented. Non-native trout are likely to be present.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 149. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest occurring in this area; 100% is unaffected by this activity. However, it is possible that some historic logging could have occurred prior to record keeping, during initial settlement of the area.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.4% of E3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 32%, Class 2: 68%, but the polygon is mostly in the headwaters of these watersheds, upstream of mining impacts
Miles of motorized road/trail within 300' of streams	3.4 miles (along Ninety-cent Gulch and a tributary of Rawhide Gulch)
Noticeable wildfire suppression impacts	No evidence of fire suppression since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 150. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	No known harvests or prescribed fire treatments have occurred in this area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	There are several mines within the polygon, most are downstream or outside of the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there no range improvements within E3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping on the eastern boundary near Tizer Lakes and the Bullock Hill area.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None known.
Presence of watershed treatment areas including contouring, diking, and channeling.	None
Lands adjacent to development or activities that impact opportunities for solitude.	None.

Improvement Type	Presence and extent of departure from naturalness
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Only one recorded cultural resources within this polygon. However, the Elkhorn Historic Mining District shares the eastern border, so there is a high probability of un-recorded historic mine sites and features.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 151. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Open roads on north, east and south around the edges of the polygon. Year round motorized trails in southern portion of the polygon.
Area available for winter motorized opportunity	Year-round motorized trails in southern portion of the polygon.
Proximity to private lands and non-Forest Service roads.	Private lands along Tizer road. No private inholdings within the polygon.
Proximity to developed recreation sites outside of the polygon area.	None present.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 152. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The northern portion of the polygon is available for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	The northern portion of the polygon is available for primitive and semi-primitive winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, horseback riding, ATV riding, and mountain biking.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 153. Size and Description**

Size of Polygon	Description
15,180 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 154. Features present**

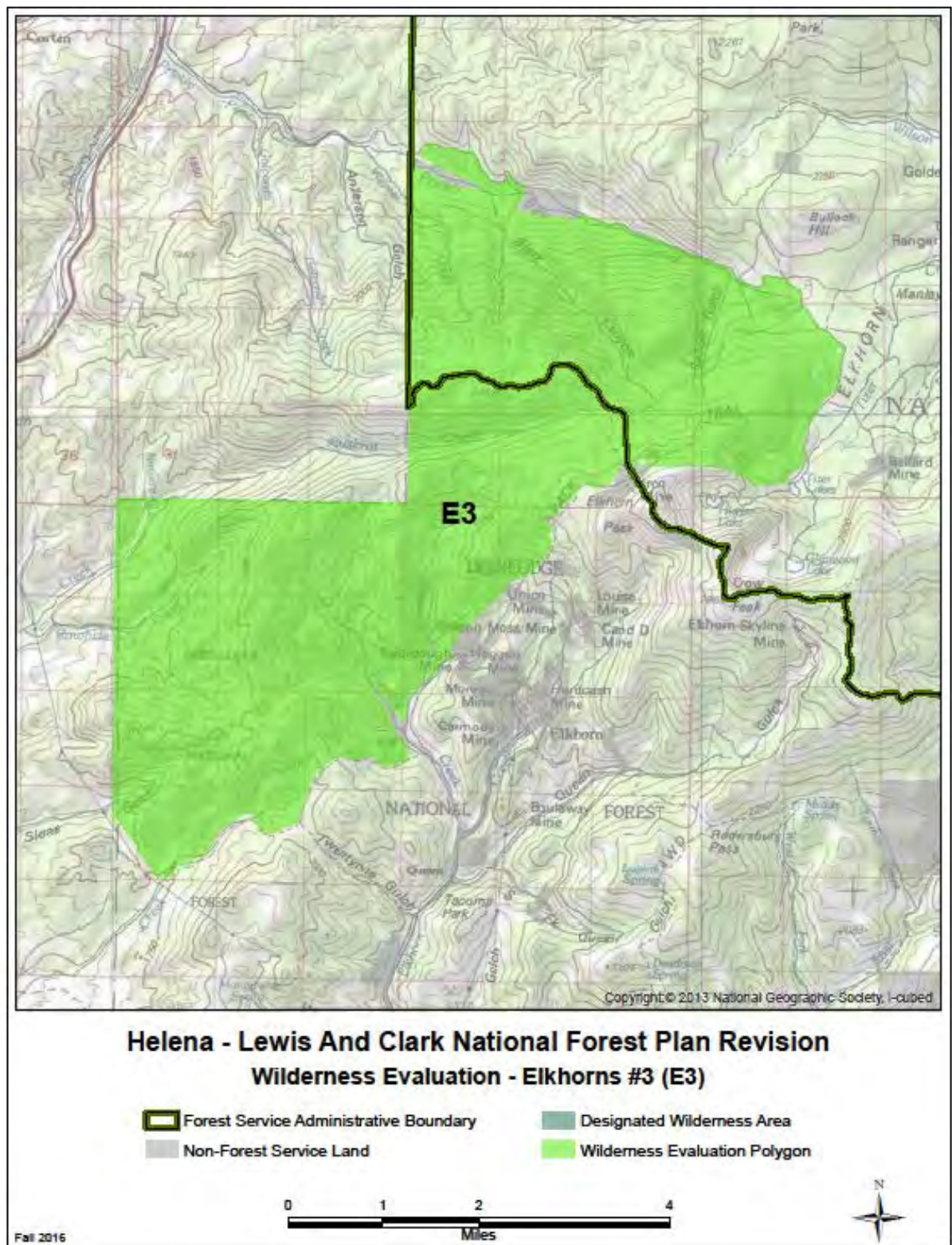
Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern known to occur in this area is <i>Pinus albicaulis</i> .
Rare animal species or communities	Federally listed species: Lynx may be occasionally present. Occasional, transient presence of grizzlies likely. Identified as Zone 2 in NCDE Grizzly Bear Conservation Strategy, for genetic connectivity with GYE population. Potential species of conservation concern and/or state at risk species: none documented Several streams with WCT, see above.
Rare ecosystems	Whitebark pine, ponderosa pine, and aspen forests are all vegetation communities of interest on the HLC NF due to their relatively low abundance and importance for habitat. These species are present in small quantities in this area. Whitebark pine is a candidate species for listing under the ESA. No rare aquatic ecosystems.
Outstanding landscape features	Elkhorn Peak on southern boundary.
Historic and cultural resource sites	The one recorded site has the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	There are high quality areas above mining locations which contain WCT, possibly protected by poor WQ "barrier".

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 155. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	A large irregular block of undeveloped land in the southwestern portion of the Elkhorn Mountains. Western boundary follows private land.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.

<b>Factors</b>	<b>Description and scale</b>
The presence and amount of non-Federal land in the area	No private inholdings.
Management of adjacent lands	Western boundary is formed by private lands. Forest Service system lands to the north, east, and south.



## Highwoods Geographic Area

### Highwood Baldy Area (H1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 156. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance type in this area is Douglas-fir dominated forest, which is found on about 38% of the area. Lodgepole pine dominated forests are also common, covering about 29% of the area. Dry grasslands can be found on 20%. Subalpine fir and Engelmann spruce mixed forests grow on about 5% of the area, at the highest elevations. Aspen dominated areas cover about 4% of the area. Other dominance types are present in very small amounts, including mesic grasslands, shrublands, ponderosa pine, limber pine, and cottonwood.
Potential vegetation types	The most common potential vegetation types are warm dry forest types, representing about 64% of the area. Cool moist forest types can be found on nearly 9%. Dry grassland potential types are found on 17% of the area. Riparian types, where aspen and cottonwood can be found, represent 5% of the area. Small amounts of mesic grassland and shrubland potential types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 442 acres within H1 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 5800 acres potential lynx habitat, with about 3000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 10,300 acres of goshawk potential nesting habitat; known nest territories. Approximately 6000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Approximately 11,000 acres secure elk habitat. Roughly 6000 acres elk winter range and 3200 acres mule deer winter range contiguous with additional winter range on adjacent non-NF land.</li> <li>• Less than 150 acres potential wolverine habitat; this area is not contiguous with other areas of wolverine occupancy.</li> <li>• WCT in NF and MF of Little Belt Creek.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented. Non-native trout likely.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 157. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in this area; 100% of the polygon is unaffected by this activity. It is possible that historic logging could have occurred prior to detailed record keeping which generally began in the 1950's.
% of area without known invasive weeds	According to data as of 2/10/2016, 97.2% of H1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1:35%, Class 2: 65%. Most impacts are downstream of the polygon, but the area within the polygon has been heavily impacted by grazing, especially the east side.
Miles of motorized road/trail within 300' of streams	0.2 miles
Noticeable wildfire suppression impacts	No fire occurrence since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 158. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	No past harvest is known to have occurred. About 71 acres, or 0.45% of the area, has been impacted by a prescribed fire treatment (an underburn in 1985 and 1988). This treatment was determined to be no longer substantially noticeable.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Highwood Baldy electronic site is a large, busy development and is visible from within the polygon.
Areas of mining activities including both abandoned and active mines.	None known.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 7.7 miles of fencing and 22 stock water tanks within H1.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Some dispersed camping, most prevalent during hunting season. No outfitter camps in the area.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Buried electric lines under the road to Highwood Baldy. May be others that provide service to private inholdings. Some of the stock tanks have small water lines associated with them.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.

Improvement Type	Presence and extent of departure from naturalness
Lands adjacent to development or activities that impact opportunities for solitude.	Busy residential subdivision on the western edge of the polygon. Helicopter use at Highwood Baldy.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Nine recorded cultural resources within this polygon. All represent structures, dwellings or other relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 159. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	FSR 8830, 8816, and 8832. FSR 8832 is the road to the communication site on Highwood Baldy. South Fork Highwood Creek road (FSR 121) bisects H1 and H2. This route has 8-9 fords on it and is traveled by 4 x4 vehicles.
Area available for winter motorized opportunity	No cross-country travel at all but all the roads and the motorized trail system is open.
Proximity to private lands and non-Forest Service roads.	Private lands surround the polygon on the north, west and south sides. Forest Service Road 121 provide the eastern boundary. There are some private land inholdings accessed by this road.
Proximity to developed recreation sites outside of the polygon area.	There is a campground and trailhead in Thain Creek in H2 that are outside of and to the east of H1.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 160. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire area, except for the area around Highwood Baldy, is available for primitive or semi-primitive non-motorized recreation. Only two non-motorized trails in H1, located in North Fork of Little Belt Creek and Deer Creek.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon except for the area by Highwood Baldy, FSR 8832 and 8816, is available for primitive and semi-primitive non-motorized recreation in winter.



Measures	Descriptions and Locations
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Fishing, limited hiking, hunting, wildlife viewing, mountain biking, motorcycle riding, and ATV riding. Snowmobiling in the winter.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 161. Size and Description**

Size of Polygon	Description
15,824 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 162. Features present**

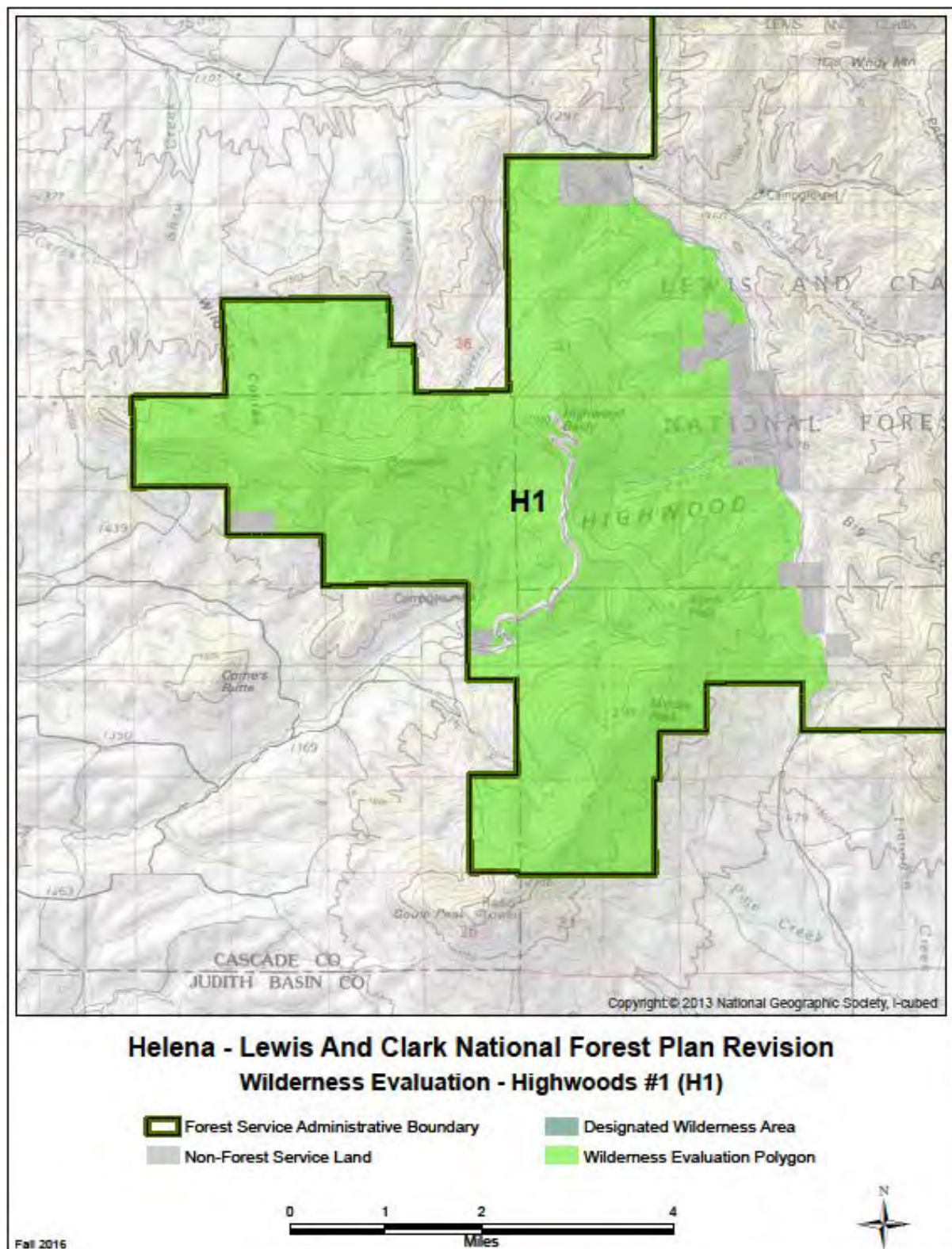
Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern known to occur in this area is <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: none documented Potential species of conservation concern and/or state at risk species: none documented WCT in NF and MF Little Belt Creeks.
Rare ecosystems	Limber pine forests are a vegetation community of interest on the HLC NF due to their relatively low abundance and habitat importance. Aspen forests and riparian areas are also of interest, and this polygon contains one of the higher proportions of aspen dominated riparian areas on the HLC NF. No known rare aquatic ecosystems.
Outstanding landscape features	Steep open parks and unique geology.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None significant.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 163. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	The west half of the Highwood Mountain range.
Legally established rights or uses within the area	None known. Maybe water rights.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to	None known.

<b>Factors</b>	<b>Description and scale</b>
protect wilderness characteristics	
The presence and amount of non-Federal land in the area	There are large private land inholdings along FSR 121.
Management of adjacent lands	Polygon is surrounded by large private ranches on the south, west, and north sides. Large block of roadless Forest Service system lands on the east.



## Arrow Prospect Area (H2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 164. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types found in this area are relatively evenly split between lodgepole pine dominated forests (covering 36% of the area); Douglas-fir dominated forests (29%), and dry grasslands (27%). In addition, subalpine fir and Engelmann spruce mixed forests cover about 3%; and aspen dominated forests are found on 2%. Other dominance types are present in very small amounts (less than 1% each), including mesic grasslands, shrublands, ponderosa pine, limber pine, cottonwood, and juniper.
Potential vegetation types	The most common potential vegetation types are warm dry forest types, which occur on over 63% of the area. Dry grassland potential types are also common, representing 23%. Cool moist forest types are found on 6%, and riparian potential vegetation types represent 4%. Trace amounts of mesic grassland, xeric shrubland, and mesic shrubland potential vegetation types can also be found.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 195 acres within H2 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 8000 acres potential lynx habitat, with about 2800 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 16,000 acres of goshawk potential nesting habitat; known nest territories. Approximately 6900 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Nearly 14,000 acres secure elk habitat. Roughly 8600 acres elk winter range and 2100 acres mule deer winter range contiguous with additional winter range on adjacent non-NF land.</li> <li>• Less than 200 acres potential wolverine habitat; this area is not contiguous with other areas of wolverine occupancy.</li> <li>• WCT in Big Coulee, Cottonwood (Arrow), and Boyd Creeks.</li> </ul>
Known non-native wildlife species	Introduced population of mountain goats, a species native to MT but not to this mountain range. No other non-native terrestrial wildlife species documented. Non-native trout likely present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 165. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Over 99.9% of the area has been unaffected by past timber harvest. The only harvest on record in this area is 12 acres of commercial thinning that occurred in 1973, although it is possible that additional "historic logging" could have occurred prior to FS record-keeping.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.3% of H2 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 44%, Class 2:56%. Impacts include riparian disturbance due to grazing and road and trail impacts.
Miles of motorized road/trail within 300' of streams	19.2 miles
Noticeable wildfire suppression impacts	No fire suppression evidence on the landscape.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 166. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	The only harvest known to have occurred in this area is a small commercial thin (12 acres) that occurred in 1973. Due to the residual trees being left and the time since treatment, it was determined that this area is no longer substantially noticeable. However, a fairly substantial portion of the area has been impacted by prescribed fire treatments. From 1986 to 1989, approximately 8,634 acres (33% of the area) was treated with broadcast burning or underburning. These treatments were focused in grassland areas. Due to the time since treatment and effects similar to wildfire, these treatments were determined to be no longer substantially noticeable.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present but electronic site on Highwood Baldy is visible from within the polygon.
Areas of mining activities including both abandoned and active mines.	None known.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 26.3 miles of fencing and 37 stock water tanks within H2.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed camping sites along the Thain Creek Road, Cottonwood Creek, and Shonkin Road. No outfitters in this polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Missile site in the southwest corner of the polygon probably has a buried line of some kind. Some of the stock tanks have small water lines associated with them.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Developments associated with large ranch lands. Helicopter use at Highwood Baldy and around missile site.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Recreation residence tracts along Thain Creek Road. Buildings associated with Cow Camps along FSR 121, and next to the road in Shonkin Creek. There are approximately 20 recorded cultural resources within this polygon. These cultural resources represent structures, dwellings and other relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 10 recorded historic routes in this polygon (40 miles).

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 167. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are approximately 25 + miles of motorcycle loop trails in the northern portion of the polygon.
Area available for winter motorized opportunity	The motorized trail system is open to over snow vehicles in the winter.
Proximity to private lands and non-Forest Service roads.	Private lands surround the polygon on the north, east, and south sides. Forest Service Road 121 provides the western boundary. There are some private land inholdings accessed by this road.
Proximity to developed recreation sites outside of the polygon area.	There is a campground and trailhead in Thain Creek. Activities from these developments are heard from within the polygon. There are 3 recreation residences along Thain Creek and Thain Creek Guard station is located within the drainage.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 168. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The 1/3 of the area, away from the motorized trails, is available for primitive and semi-primitive non-motorized recreation.
Primitive and semi-primitive non-motorized winter recreation.	The 1/3 of the area, away from the motorized trails, is available for primitive and semi-primitive non-motorized recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Fishing, limited hiking, hunting, wildlife viewing, mountain biking, motorcycle riding, and ATV riding. Snowmobiling in the winter.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 169. Size and Description**

Size of Polygon	Description
26,210 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 170. Features present**

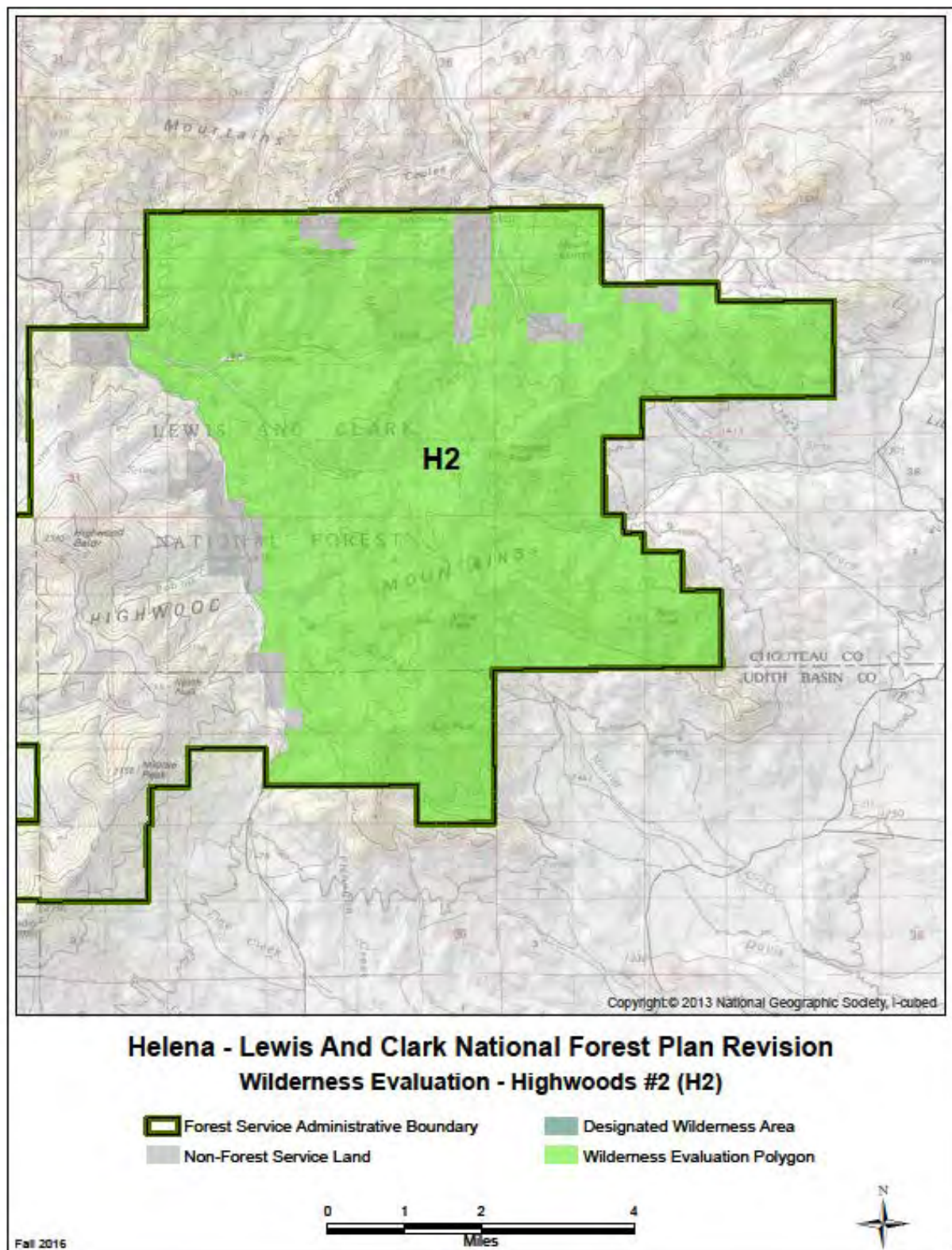
Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern known to occur in this area is <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: Transient lynx documented; area not considered occupied and not contiguous with occupied areas. Historic record of Sprague's pipit: this is a grassland bird and primary habitat on adjacent non-NF land. Potential species of conservation concern and/or state at risk species: gray-crowned rosy finch, dwarf shrew; historic records of greater sage grouse, chestnut-collared longspur; both species grassland types and primary habitat on adjacent non-NF land. Lewis's woodpecker. WCT in Boyd, Cottonwood (Arrow), and Big Coulee Creek.
Rare ecosystems	Limber pine, ponderosa pine, and aspen forests are all considered vegetation communities of interest on the HLC NF due to their relatively low abundance and importance for habitat. These are present in fairly small amounts in this area. No rare aquatic ecosystems.
Outstanding landscape features	Steep open parks and unique geology.
Historic and cultural resource sites	All recorded cultural resources in this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	North Fork Highwood and Big Coulee Creeks are on the draft list in the 2015 Wild and Scenic Rivers Eligibility Study; they are listed for their outstanding WCT fisheries.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 171. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	The east half of the Highwood Mountain range. Public access to this polygon is limited by lack of legal access through private lands.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	There are large private land inholdings along FSR 121.
Management of adjacent lands	Polygon is surrounded by large private ranches on the south, east, and north sides. Large block of roadless Forest Service system lands on the west.





## Little Belts Geographic Area

### Deep Creek Area (LB1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 172. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are Douglas-fir dominated forests, which cover about 67%, and lodgepole pine dominated forests, which cover about 17%. Dry grasslands and subalpine fir/Engelmann spruce mixed forests are also common, each covering about 5%. Nearly 3% of the area supports ponderosa pine forest. Very small amounts (less than 1% each) of other dominance types are also present, including shrublands, whitebark pine, limber pine, cottonwood, aspen, and juniper.
Potential vegetation types	The bulk of this area supports either warm dry forest potential vegetation types (58%) or cool moist forest potential types (34%). Dry grassland potential types are found on about 5%. Small amounts of other potential types are also present, including cold forest types (where whitebark pine may grow), shrublands, riparian, and sparsely vegetated areas.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 532 acres within LB1 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 27,000 acres potential lynx habitat, with about 14,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 67,000 acres of goshawk potential nesting habitat indicates presence of mature forest. Approximately 1600 acres existing and 46,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Nearly 53,000 acres secure elk habitat. Roughly 23,000 acres elk winter range, 11,000 acres elk calving habitat, and 27,000 acres mule deer winter range all contiguous with additional winter range on adjacent non-NF land. Moose may be present in riparian areas.</li> <li>• Roughly 6300 acres potential wolverine habitat.</li> <li>• Probable golden eagle and possible peregrine falcon nesting areas in NE portion along Smith River.</li> <li>• WCT in NF and SF Deep Creek, SF Tenderfoot, and Logging Creeks.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 173. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in this area. 100% of the area is unaffected by this activity.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.4% of LB1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 61%, Class 2: 39%; Impacts are mainly outside/downstream of polygon
Miles of motorized road/trail within 300' of streams	27.1 miles
Noticeable wildfire suppression impacts	No evidence of fire suppression.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 174. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no records of past harvest or prescribed fire activities in this area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Radio communications site on Monument Peak Lookout.
Areas of mining activities including both abandoned and active mines.	Active recreational gold mine in Placer Creek. Other abandoned mines along FSR 839, within the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 5 miles of fencing and 11 stock water tanks within LB1.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Outfitter camps in Loblely Gulch, Double Gulch, junction of the Smart Fork, and Parker Ridge. Boat camps along the Smith River. Dispersed camping throughout the polygon, both during summer and hunting seasons.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Electric line along Logging Creek road might be seen from the interior of the polygon.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Private inholding where they outfit from Deep Creek Park, recreation residences along the periphery, Monument peak rental cabin with communication site.

Improvement Type	Presence and extent of departure from naturalness
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Monument Peak. Mine adits. There are approximately 23 recorded cultural resources within this polygon. They all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	1.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	Old wagon roads into Deep Creek Park in the western part of the polygon. Remnants of old telephone line from Monument Peak down Daisy Creek. Two recorded historic routes (8 miles) are within this polygon. However, there is a high potential for unrecorded routes.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 175. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Motorized trail around Deep Creek Park to the Smith River. Motorized trails on the eastern portion of the polygon (motorcycle and ATV trails). National motorized recreation trails on Monument Ridge, Deep Creek Ridge, and Blankenbaker Flats.
Area available for winter motorized opportunity	Snowmobile corridor from Monument Peak, Bald Hills to Tenderfoot. Snowmobile corridor along boundary with FSR 839. All other areas closed to winter motorized uses.
Proximity to private lands and non-Forest Service roads.	Private inholding in Deep Creek Park. Private lands along the Smith River to the west and along the northern boundary.
Proximity to developed recreation sites outside of the polygon area.	Logging Creek Campground, Monument Peak Lookout Cabin rental, recreation residences along the Logging Creek Road. Deep Creek, Taylor Hills, Balsinger, and Pilgrim Trailheads.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 176. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	There are two areas with primitive and semi-primitive non-motorized summer recreation. One is located south of Deep Creek Park and north of the Tenderfoot. The other is located north of motorized trail 311 to the forest boundary, excluding the area west of Blankenbaker Flats.
Primitive and semi-primitive non-motorized	Very little opportunity for primitive or semi-primitive non-

Measures	Descriptions and Locations
winter recreation.	motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, fishing, backpacking, horseback riding, boating on the Smith River, mountain biking, ATV riding, motorcycle riding, and snowmobiling in the two corridors.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 177. Size and Description**

Size of Polygon	Description
89,321 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 178. Features present**

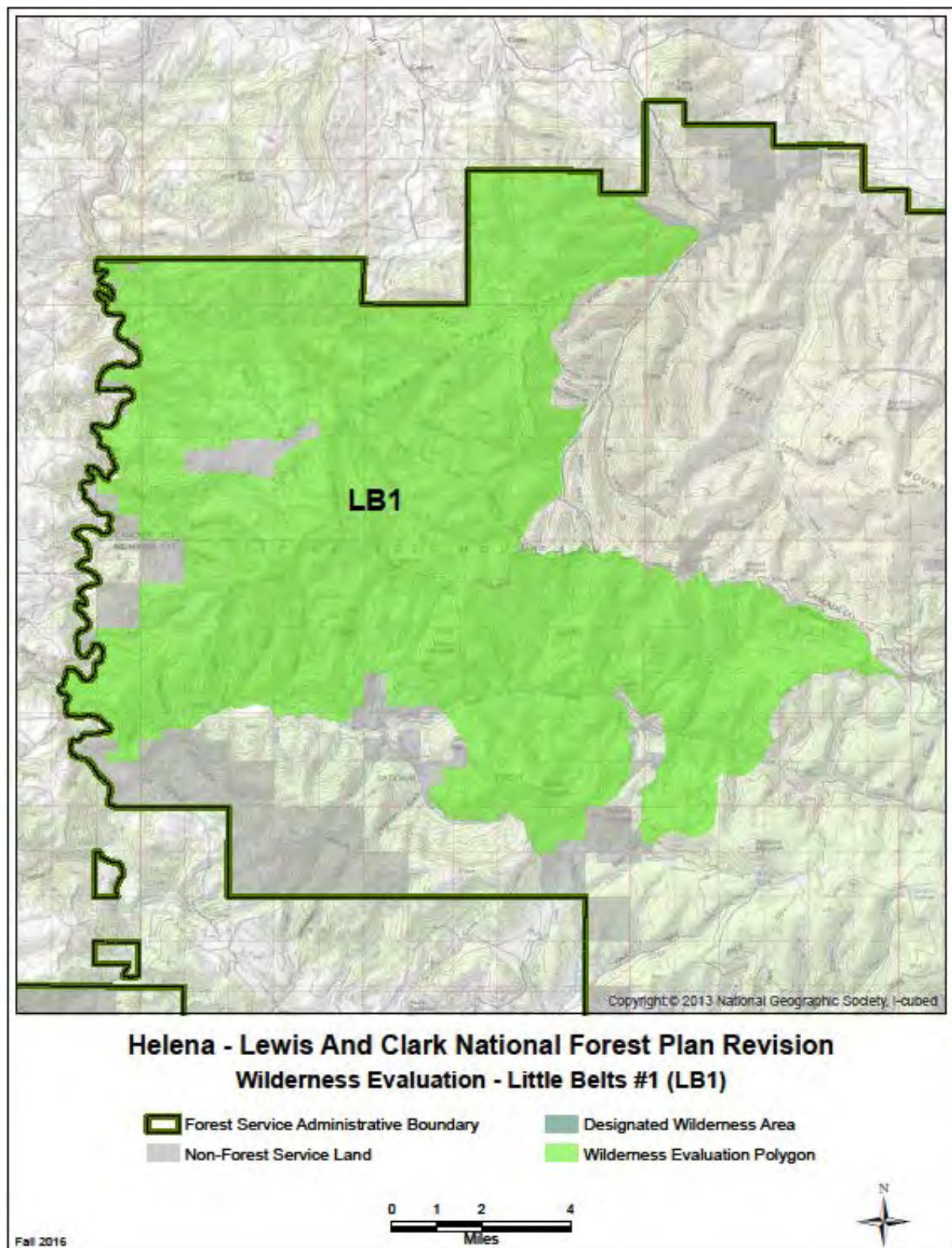
Features	Description and scale
Rare plant communities	Several potential plants of conservation concern are known to occur in this area, including <i>Pinus flexilis</i> , <i>Pinus albicaulis</i> , and <i>Funaria americana</i> .
Rare animal species or communities	Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: wolverine, possibly harlequin duck (Smith River) WCT in NF and SF Deep Creek, Logging Creek and SF Tenderfoot Creek.
Rare ecosystems	Ponderosa pine, limber pine, and whitebark pine are vegetation ecosystem components of interest on the HLC NF due to their limited abundance and habitat value. Whitebark pine is a candidate for listing under the ESA. These species are present in very small amounts in this area.
Outstanding landscape features	Smith River and waterfalls on Tenderfoot Creek.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Tenderfoot Creek and tributaries have very high water quality. Tenderfoot Creek and the Smith River (on western boundary of polygon) are both eligible WSR segments. Deep Creek has high water quality and high value WCT population.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 179. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Large irregular shaped polygon in the west end of the Little Snowies GA. Polygon extends from the Smith River east to Logging Creek and the Divide Road along the ridgeline.
Legally established rights or uses within the area	Special Uses ROW access to Deep Creek Park.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Deep Creek Park private land inholding.
Management of adjacent lands	Private ranch lands to the north. Subdivisions, ranch lands, and the Smith River corridor on the west. Forest Service system lands to the east and south.





## Big Horn Thunder Area (LB2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 180. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types found in this area are Douglas-fir dominated forests, which cover about 56% of the area. Lodgepole pine dominated forests are also common, found on about 22%. Subalpine fir and Engelmann-spruce mixes can be found at higher elevations, covering about 13% of the area. Other types are relatively rare; dry grasslands and sparsely vegetated areas (rock and scree) are found on about 3% each, and ponderosa pine dominated forests are found on 2%. Other types are rare but present, making up less than 1% each, including shrublands, whitebark pine, limber pine, cottonwood, and aspen.
Potential vegetation types	The main potential vegetation types found in this area are warm dry forest types (42%) and cool moist types (52%), consistent with the abundance of Douglas-fir and lodgepole pine forests. Dry grassland and sparsely vegetated potential types are found on between 2-3% each. Trace amounts of other types occur, include the cold forest type (where whitebark pine may grow), shrubland types, and riparian types where cottonwood and aspen are most likely found.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 64 acres within LB2 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 22,000 acres potential lynx habitat, with approximately 11,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 29,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 4000 acres existing and over 30,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Presence of Clark's nutcracker indicates mature whitebark, ponderosa, and/or limber pine. Also functioning snag habitat.</li> <li>• Approximately 30,000 acres secure elk habitat; 5800 acres mule deer winter range along northern edge contiguous with same on non-NF land. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Approximately 8,000 acres potential wolverine habitat.</li> <li>• WCT in Pilgrim, Deer, Horn and Tillinghast Creeks.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 181. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in this area; 100% is unaffected by this activity.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of LB2 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 37%, Class 2: 63%. Impacts in class 2 watersheds are primarily downstream/ outside of polygon.
Miles of motorized road/trail within 300' of streams	17.3 miles, motorized trail along the entire length of Pilgrim Creek
Noticeable wildfire suppression impacts	Goblin Gulch Fire (2012): Some handlines constructed/rehabed, helispot constructed/rehabbed. However, break in timber continuity evident.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 182. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no known areas of timber harvest in this area. A minimal amount of prescribed burning has occurred, consisting of 15 acres of pile burning in 1995. This activity makes up only 0.04% of the area, and was determined to no longer be substantially noticeable on the landscape.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	Historic mining in patented mining inholding. Abandoned historic mine in Timber Gulch. Private land withholding with historic mining in Pilgrim Creek. Abandoned mining exploration pits on Thunder Mountain in Goblin Gulch.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are approximately 2 miles of fencing and 4 stock water tanks within LB2.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Hunting camps along Pilgrim Creek and Thunder Mountain trail.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Electric line along Logging Creek road might be seen from the interior of the polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Recreation residences along the periphery in Logging Creek. Deer Creek Estates on the south boundary of LB2.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Cabins in Big Timber Creek and top of Iron Creek, close to the private inholding. There are 12 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	2.4 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	Historic road from Belt Creek up Holter Gulch to mining claim. Historic road from Logging Creek up to Big Timber Gulch. Old road bed up Pilgrim Creek. There are 2 recorded historic routes (67 miles) within this polygon.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 183. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	All non-motorized except for Pilgrim Creek, Tobin Gulch, and Deer Creek trails which are open seasonally for motorcycles.
Area available for winter motorized opportunity	Snowmobile corridor along boundary with FSR 839. All other areas closed to winter motorized uses.
Proximity to private lands and non-Forest Service roads.	Two private land inholdings. One is on the north side of Big Horn Mountain. One is in the bottom of Pilgrim Creek at the junction with Deer Creek. Deer Creek Estates subdivision to the south of the polygon.
Proximity to developed recreation sites outside of the polygon area.	Logging creek Campground, recreation residences along the Logging Creek Road. Deep Creek, Taylor Hills, Balsinger, and Pilgrim Trailheads.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 184. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Areas east and west of the Pilgrim Creek Trail are available for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Majority of the polygon is available for primitive and semi-primitive non-motorized recreation in the winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Motorcycle riding, horseback riding, fishing, archery, rifle hunting, and mountain biking.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 185. Size and Description**

Size of Polygon	Description
45,334 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

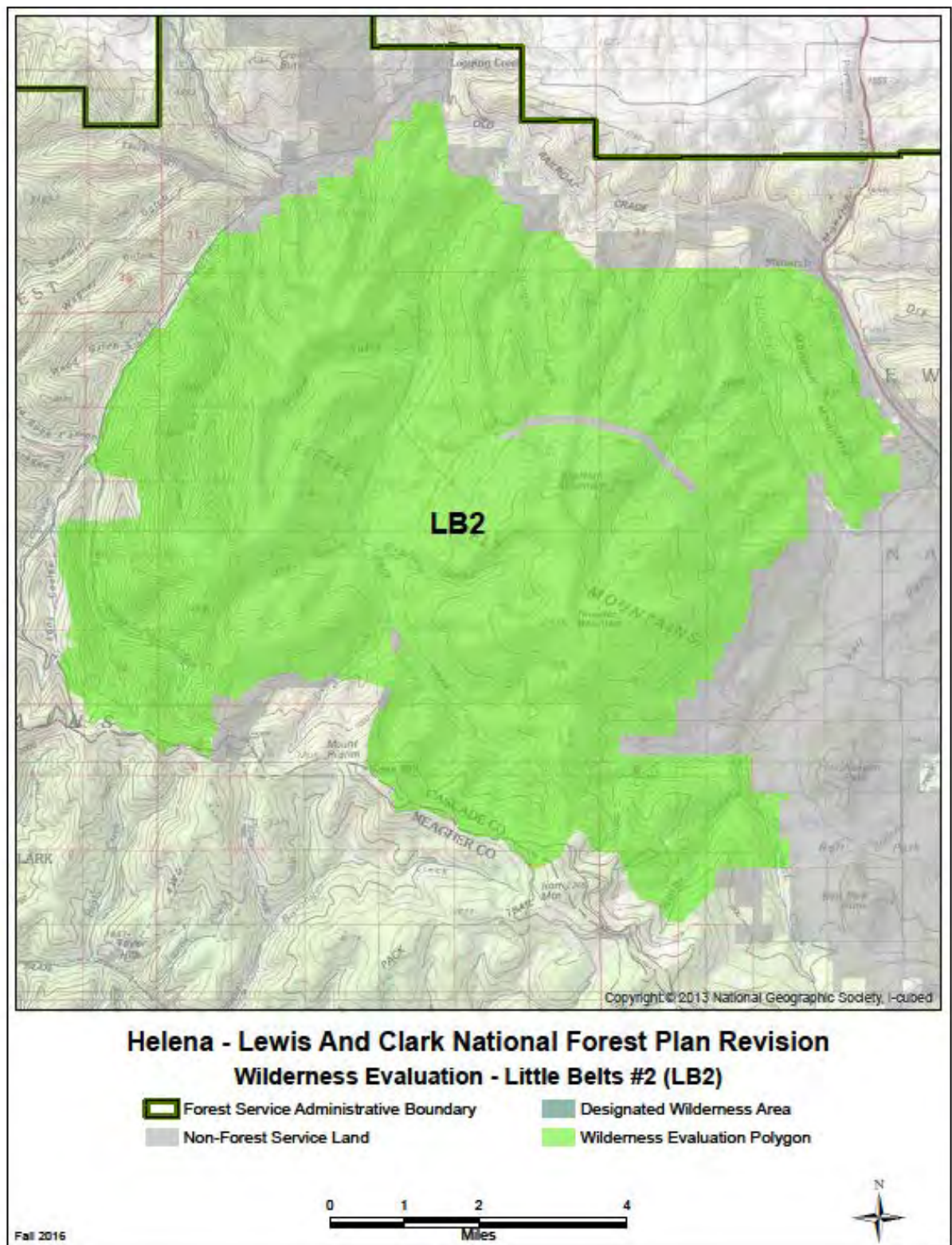
**Table 186. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Elymus innovates</i> .
Rare animal species or communities	Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: none documented WCT in Pilgrim, Deer, Horn and Tillinghast Creeks.
Rare ecosystems	Whitebark pine is a candidate for listing under ESA. Whitebark pine, limber pine, ponderosa pine, and aspen vegetation communities are all of interest on the HLC NF due to their limited abundance and importance for habitat. These types are present in very small amounts in this area. No rare aquatic ecosystems
Outstanding landscape features	Big Horn Mountain, Thunder Mountain, Pilgrim Creek, Tillinghast Creek, and rock scree around Thunder Mountain,
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Pilgrim Creek has high quality WCT fishery, good water quality, and is included in the draft list of potential WSRs for its high quality WCT fishery. Tillinghast Creek also is high quality up high in the watershed, above cattle impacts.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 187. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	A large undeveloped landscape east of Logging Creek and southwest of Monarch. The polygon includes all of the Thunder Mountain and the main stem of Pilgrim Creek.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private land inholdings in Deer Creek and Thunder Mountain.
Management of adjacent lands	Private ranch lands to the east in Belt Park. Forest Service system lands and privates along the north boundary. Logging Creek and Divide road on the west and south boundaries. Deer Creek Estates on the southern border.



## Sun Mountain Area (LB3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 188. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Nearly 54% of this small area is dominated by Douglas-fir forests, and lodgepole pine forests are found on about 15%. A fairly large proportion, 16%, is considered transitional where forest regeneration is still initiating after the Monarch fire of 2001. About 6% of the area (at higher elevations) supports subalpine fir and Engelmann spruce mixed forest, and ponderosa pine dominated areas are found at the lowest elevations (3%). Dry grasslands are found on nearly 3%. Other dominance types are found in trace amounts, generally 1% or less, and include shrublands, limber pine, and aspen.
Potential vegetation types	Warm dry forest potential vegetation types are the most common, found on 76% of the area, and commonly support limber pine, ponderosa pine, and Douglas-fir. Cool moist forest types cover about 18%, where lodgepole, spruce, and fir are more likely to grow. Dry grassland potential types are found on 4%. Trace amounts of other types are present, including shrublands and riparian potential vegetation types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 67 acres within LB3 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 3400 acres potential lynx habitat, with approximately 1400 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 4600 acres of goshawk potential nesting habitat. Approximately 700 acres existing and 3500 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Approximately 4600 acres secure elk habitat; 1900 acres mule deer winter range contiguous with same on non-NF land. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Fewer than 70 acres of potential wolverine habitat.</li> <li>• No WCT.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. If present, non-native trout likely

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 189. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Some records of past harvest are found in this area, indicating that roughly 4% was impacted. Treatments consisted of a commercial thin in 1974 and 1976. 96% of this area is unaffected by harvest treatments.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.2% of LB3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%, but impacts are primarily downstream/ outside of polygon.
Miles of motorized road/trail within 300' of streams	0.0 miles
Noticeable wildfire suppression impacts	Monarch Fire (2011): visible breaks in the timber from old hand lines and helispot.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 190. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	Roughly 4% of this area (304 acres) was harvested in the 1970's. This treatment included the retention of leave trees; due to this and the time since treatment, these areas were determined to be no longer substantially noticeable. In addition, roughly 40 acres had the prescribed burning treatment of burning piles in 2001; this was also determined to not be substantially noticeable and impacted less than 0.5% of the area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None known.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1/2 mile of fencing and 70.5 acres of vegetation treatments are within LB3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping in Dry Fork Belt Creek.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Utility corridors outside of the polygon on the southwest boundary. Powerline corridor along Dry Fork Belt Creek.



Improvement Type	Presence and extent of departure from naturalness
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Community of Monarch. Subdivisions on the western and southern boundaries. Heavily used dispersed area in Dry Fork Belt Creek.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	None known.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 191. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	No authorized motorized trails.
Area available for winter motorized opportunity	Closed to snowmobiles and winter motorized use.
Proximity to private lands and non-Forest Service roads.	Dry Fork Belt Creek is a Cascade County road. Private roads accessing residential areas on the south border of the border of polygon. Highway 89 to the west of the polygon.
Proximity to developed recreation sites outside of the polygon area.	Borders a high use, heavily impacted dispersed recreation area in Dry Fork Belt Creek.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 192. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized winter recreation.



Measures	Descriptions and Locations
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, and hunting.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 193. Size and Description**

Size of Polygon	Description
7,965 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 194. Features present**

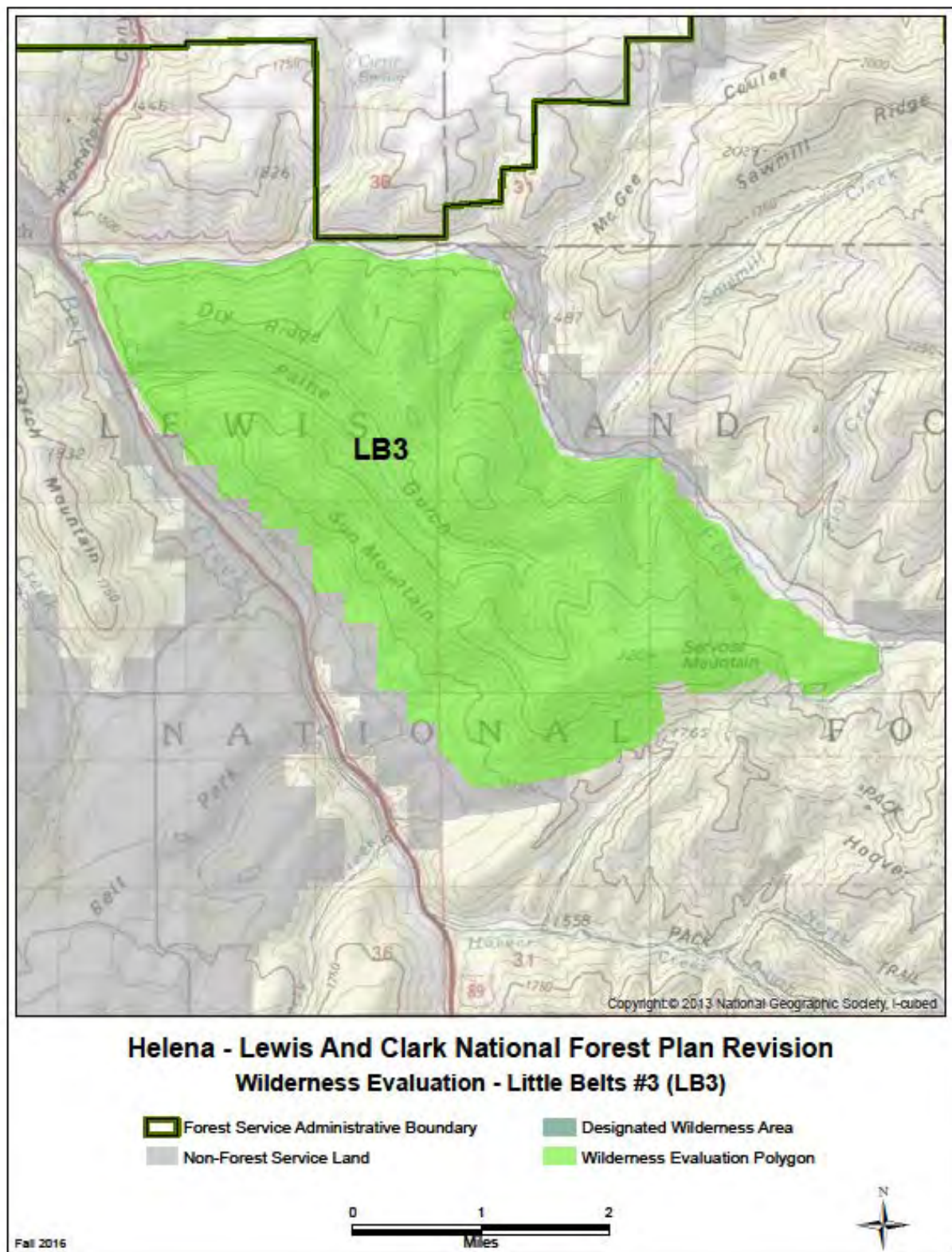
Features	Description and scale
Rare plant communities	The potential plants of conservation concern known to occur in this area include <i>Pinus flexilis</i> and <i>Cirsium longistylum</i> .
Rare animal species or communities	Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: none documented No rare aquatic species known.
Rare ecosystems	Very small amounts of ponderosa pine, aspen, and limber pine vegetation communities are found in this area, which are types of interest on the HLC NF due to their low abundance and habitat importance. No known rare aquatic ecosystems.
Outstanding landscape features	Limestone cliffs.
Historic and cultural resource sites	No recorded cultural resources in this polygon.
Research Natural Areas	Paine Gulch RNA.
High quality water resources or important watershed features	Madison limestone.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 195. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Relatively narrow rectangle between State Highway 89, Dry Fork Belt Creek road (county road), and the Ruby Hen Road (FSR).
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for	None known.

<b>Factors</b>	<b>Description and scale</b>
wilderness or the ability to manage the area to protect wilderness characteristics	
The presence and amount of non-Federal land in the area	None within the polygon.
Management of adjacent lands	Rural and private residential developments along Highway 89 and Belt Creek to the southwest. Dispersed recreation and private lands in Dry Fork Belt Creek to the east. Forest Service system lands to the south. Forest Service system and state lands to the north.



## McGee Sawmill Area (LB4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 196. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are Douglas-fir dominated forests (covering 40%) and lodgepole pine dominated forests (covering 33%). Subalpine fir and Engelmann spruce mixed forests are also common, found on 13%. Sparsely vegetated areas, such as rock and scree, are found on nearly 7%, and dry grasslands dominate on just over 3%. Ponderosa pine and limber pine forests make up just under 2% each. Very small amounts (less than 1% each) of other dominance types are also present, including shrublands, whitebark pine, and cottonwood.
Potential vegetation types	The area is fairly evenly dominated by two main potential vegetation groups: warm dry forest types (45%), and cool moist forest types (44%). Sparsely vegetated areas represent 7%, and dry grassland potential types are found on 2%. Other types making up 1% or less each include cold forest types (where whitebark pine may grow), shrubland types, and riparian types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 21 acres within LB4 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 3500 acres potential lynx habitat, with approximately 1500 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 5200 acres of goshawk potential nesting habitat, some known nesting territories. Approximately 915 acres existing and 3500 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Approximately 7000 acres secure elk habitat; fewer than 1000 acres elk winter range and 3500 acres mule deer winter range contiguous with same on non-NF land. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Roughly 1100 acres of potential wolverine habitat.</li> <li>• WCT in Sawmill Creek.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 197. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 99.9% of the area has been unaffected by harvest, according to available harvest records. About 9 acres were harvested with a commercial thin in 1974, representing 0.11% of the area.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.79% of LB4 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%; impacts are primarily outside of polygon
Miles of motorized road/trail within 300' of streams	0.0 miles.
Noticeable wildfire suppression impacts	No fire occurrence records since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 198. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	The only known vegetation treatment to have occurred in this area is the 9-acre commercial thin in 1974 which was determined to be no longer substantially noticeable. No known prescribed fire treatments have occurred within the polygon, although some large fuel reduction treatment units lie adjacent to the boundary.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None.
Areas of mining activities including both abandoned and active mines.	None known.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1/10 <sup>th</sup> mile of fencing and 1 stock water tank within LB4. There are approximately 140 acres of vegetation treatments within LB4,
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps within polygon. Numerous dispersed camping sites along Dry Fork Belt Creek.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Powerline corridor along Dry Fork Belt Creek. Missile communication line is located in McGee Coulee.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.

Improvement Type	Presence and extent of departure from naturalness
Lands adjacent to development or activities that impact opportunities for solitude.	Heavily used dispersed area in Dry Fork Belt Creek. Superfund site to the east.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Old cabin in an unnamed drainage of Sawmill Creek. No recorded cultural resources within this polygon, however there is the potential for unrecorded cultural resources.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	1.4 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic routes.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 199. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Area is not available for summer motorized use.
Area available for winter motorized opportunity	Area is not available for winter motorized use.
Proximity to private lands and non-Forest Service roads.	Polygon borders private lands along the Dry Fork Belt Creek road. Polygon borders private ranch lands to the north. Dry Fork Belt Creek road is a Cascade County road.
Proximity to developed recreation sites outside of the polygon area.	Borders a high use, heavily impacted dispersed recreation area in Dry Fork Belt Creek.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 200. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, fishing and hunting.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 201. Size and Description**

Size of Polygon	Description
8,355 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 202. Features present**

Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern known to occur in this area include <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: none documented WCT in Sawmill Creek.
Rare ecosystems	Whitebark pine is a candidate for listing under ESA. Whitebark pine, limber pine, and ponderosa pine are all vegetation communities of interest on the HLC NF due to their limited abundance and habitat importance. These are present in very small amounts in this area. High quality WCT habitat in Sawmill Creek, segment goes dry below population due to limestone, so the population is protected.
Outstanding landscape features	A few limestone cliffs.
Historic and cultural resource sites	None known.
Research Natural Areas	None present.
High quality water resources or important watershed features	High quality WCT population.

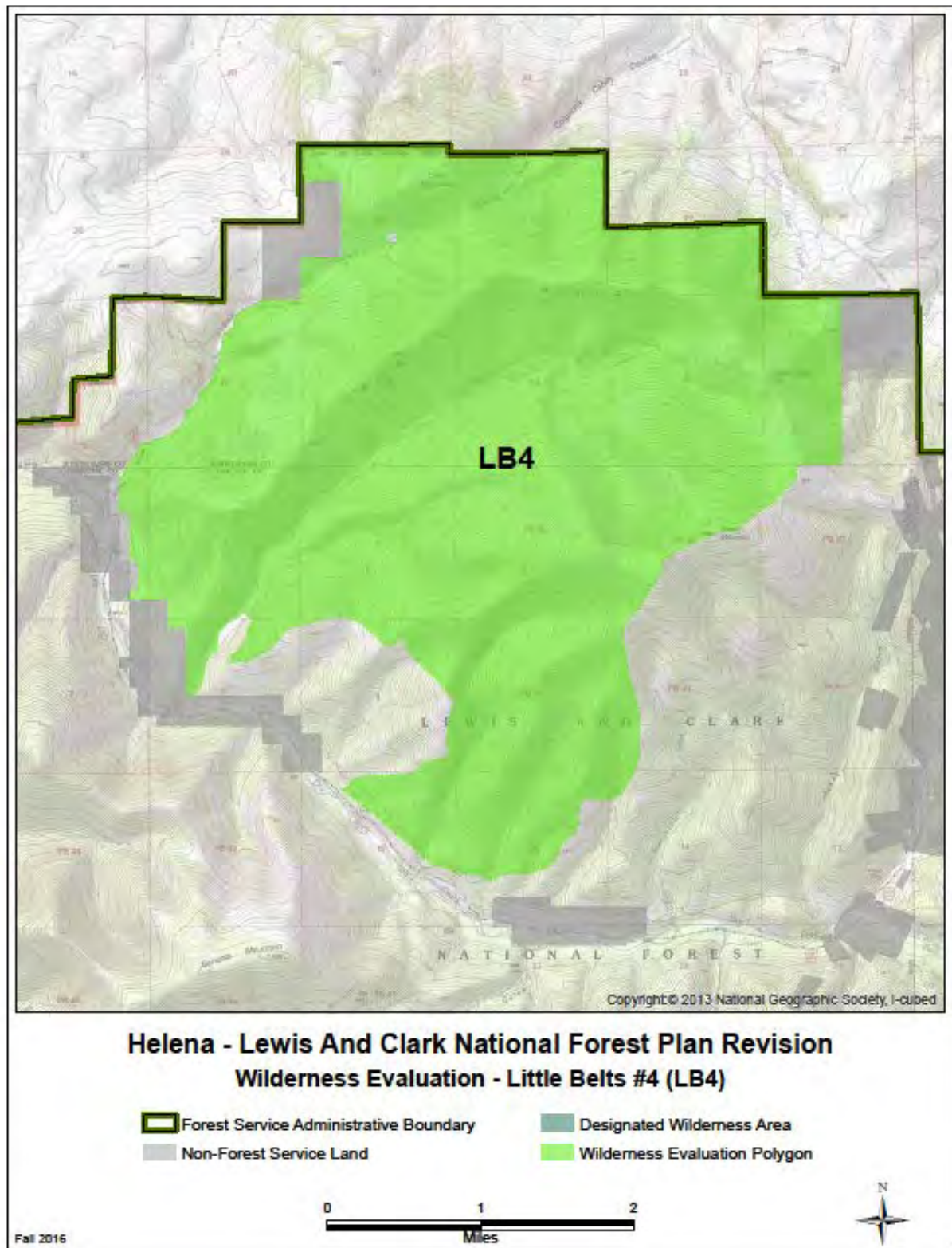
Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 203. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Irregular shaped polygon north of Dry Fork of Belt Creek road. Polygon is formed by private land to the north and private lands and the Barker-Hughesville superfund site on the south and the east.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to	None known.

<b>Factors</b>	<b>Description and scale</b>
protect wilderness characteristics	
The presence and amount of non-Federal land in the area	None present.
Management of adjacent lands	Ranch lands to the north. National Forest system lands to the south. Superfund to the east and west. Dry Fork Belt Creek road to the west.





## Peterson Mountain Area (LB5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 204. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area include lodgepole pine dominated forests (covering 42%) and Douglas-fir dominated forests (found on 29%). Subalpine fir and Engelmann spruce mixed forests are also common at higher elevations, growing on about 11% of the area. Dry grasslands are found on 10% of the area, and limber pine dominated forests are found on nearly 5%. Trace amounts (covering less than 1% of the area each) are also found, including shrublands, ponderosa pine, whitebark pine, aspen, and juniper.
Potential vegetation types	Two main potential vegetation type groups occur in this area: cool moist forest types (49%) and warm dry forest types (38%). Dry grassland potential types are the next most common, representing about 6% of the area. Other types found include shrubland, riparian, and sparse vegetation potential types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 60 acres within LB5 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 2300 acres potential lynx habitat, with approximately 970 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 4200 acres of goshawk potential nesting habitat, some known nesting territories. Approximately 200 acres existing and 4300 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Approximately 5600 acres secure elk habitat; fewer than 150 acres elk winter range and 1700 acres mule deer winter range contiguous with same on non-NF land. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Roughly 1100 acres of potential wolverine habitat.</li> <li>• WCT in Lost Creek.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 205. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	100% of the area has no record of past timber harvest.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.1% of LB5 is not associated with invasive plant inventories.

Measures	Outcome
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2:100%, but sits at headwaters of 3 watersheds, impacts are occurring downstream of polygon
Miles of motorized road/trail within 300' of streams	0.1 mile
Noticeable wildfire suppression impacts	No fire occurrence records since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 206. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	No harvest is known to have occurred in this area. However, records show that roughly 150 acres have been impacted by prescribed fire treatment, consisting of underburns from 1983 to 2005 that occurred along the boundary. These treatments were determined to not be substantially noticeable, and make up about 2% of the area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are approximately 5 miles of fencing and 1 stock water tank and 72 acres of vegetation treatments within LB5.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Limited dispersed camping along the southeast edges of the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Water line in Peterson Creek.
Presence of watershed treatment areas including contouring, diking, and channeling.	None.
Lands adjacent to development or activities that impact opportunities for solitude.	Ranching activity on private land surrounding the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	No recorded cultural resources within this polygon.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.

Improvement Type	Presence and extent of departure from naturalness
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 207. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	None of the area is open or available for summer motorized recreation.
Area available for winter motorized opportunity	Snowmobile use allowed along Lone Tree corridor. Rest of the polygon to the north is restricted for winter motorized use.
Proximity to private lands and non-Forest Service roads.	Private lands surround the polygon on the north, south, portions on the east and the west.
Proximity to developed recreation sites outside of the polygon area.	None present.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 208. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking and fishing.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 209. Size and Description**

Size of Polygon	Description
6,839 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 210. Features present**

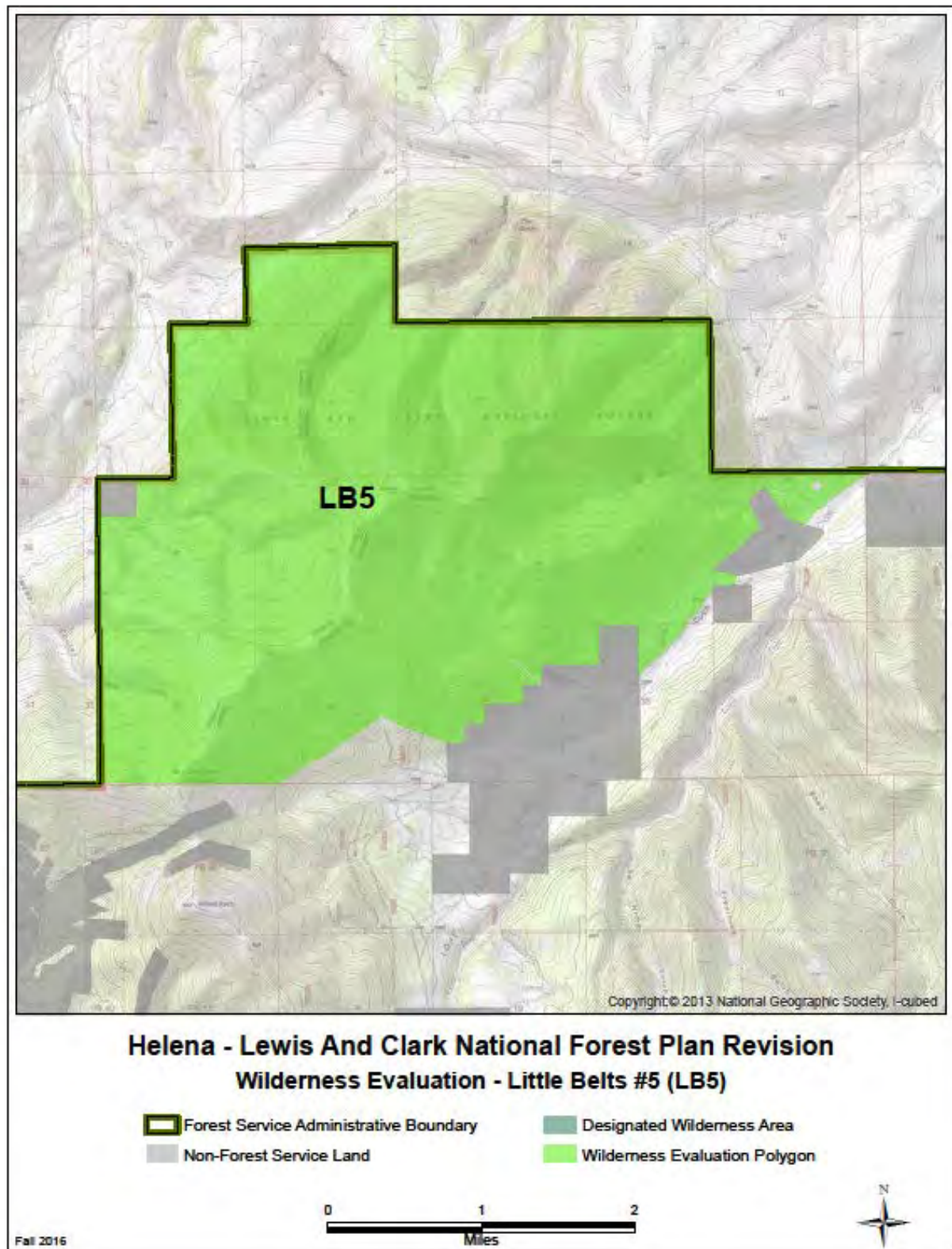
Features	Description and scale
Rare plant communities	The only potential plants of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: none documented WCT population in Lost Creek.
Rare ecosystems	Whitebark pine is a candidate for listing under the ESA. Whitebark pine, limber pine, ponderosa pine, and aspen are all considered vegetative communities of interest on the HLC NF, and are present in very small amounts in this area. No rare aquatic ecosystems
Outstanding landscape features	Peterson Mountain
Historic and cultural resource sites	None known.
Research Natural Areas	None present.
High quality water resources or important watershed features	None, area is relatively dry.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 211. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Remote and undeveloped polygon formed by private ranchlands on the west, north, and portions of the east and south.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private land surrounds the polygon but no private inholdings.
Management of adjacent lands	Private agriculture lands to the north west and portion of the east of the polygon. BLM parcels on the west and north. Forest Service system lands on the south and portions of the eastern boundary. Superfund site surrounding Barker-Hughesville on portion of the southern boundary.





## Taylor Mountain Area (LB6)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 212. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The two most common dominance types in this area are lodgepole pine dominated forests (covering 37% of the area), and Douglas-fir dominated forests which are found on about 36% of the area. Subalpine fir and Engelmann spruce mixed forests are also common at higher elevations, growing on about 11% of the area. Limber pine dominated forests cover nearly 8%. Dry grasslands and sparsely vegetated areas (rock/scree) each cover about 4%. Other types are present in very small amounts, covering less than 1% of the area each, including shrublands, ponderosa pine, whitebark pine, and aspen.
Potential vegetation types	The two potential vegetation types that dominate this area are warm dry forest types (49%) and cool moist forest types (43%). Dry shrubland potential types are found on 3%, and are likely encroached with conifers since shrub dominated areas are less common. Very small amounts of other potential types that occur include cold forest (where whitebark may grow) and riparian types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 19 acres within LB6 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 3900 acres potential lynx habitat, with approximately 1900 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 7400 acres of goshawk potential nesting habitat, some known nesting territories. No existing but up to 5000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Approximately 7200 acres secure elk habitat; fewer than 150 acres elk winter range and only 400 acres mule deer winter range contiguous with same on non-NF land. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Roughly 1000 acres of potential wolverine habitat.</li> <li>• No known WCT populations.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. No known aquatic non-natives.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 213. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	100% of this areas is unaffected by past harvest, according to available records.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.8% of LB6 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 8%, Class 2: 92% Polygon is upstream of most impacts.
Miles of motorized road/trail within 300' of streams	2.2 miles, but streams are primarily intermittent
Noticeable wildfire suppression impacts	No fire occurrence since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 214. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no records of past harvest in this area. However, records show that roughly 291 acres have had a prescribed fire treatment, consisting of underburns that occurred from 2003 to 2005, and pile burning in 1996. These treatments affected nearly 3% of the area, are located along the edge of the area, and were determined to not be substantially noticeable (with effects similar to wildfire).
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 2 miles of fencing and 4 stock water tanks and 161 acres of vegetation treatments within LB6.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed recreation along private land boundary on the west. No outfitter camps.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.



Improvement Type	Presence and extent of departure from naturalness
Lands adjacent to development or activities that impact opportunities for solitude.	Ranching activity on private land surrounding the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	One recorded cultural resource in this polygon, which represents a relic of past occupation.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	4.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 215. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Polygon is not open for motorized use in summer.
Area available for winter motorized opportunity	Snowmobile use allowed along Lone Tree corridor. Rest of the polygon is restricted for winter motorized use.
Proximity to private lands and non-Forest Service roads.	Private lands surround the polygon.
Proximity to developed recreation sites outside of the polygon area.	None present.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 216. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized recreation.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, and horseback riding.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 217. Size and Description**

Size of Polygon	Description
11,374 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 218. Features present**

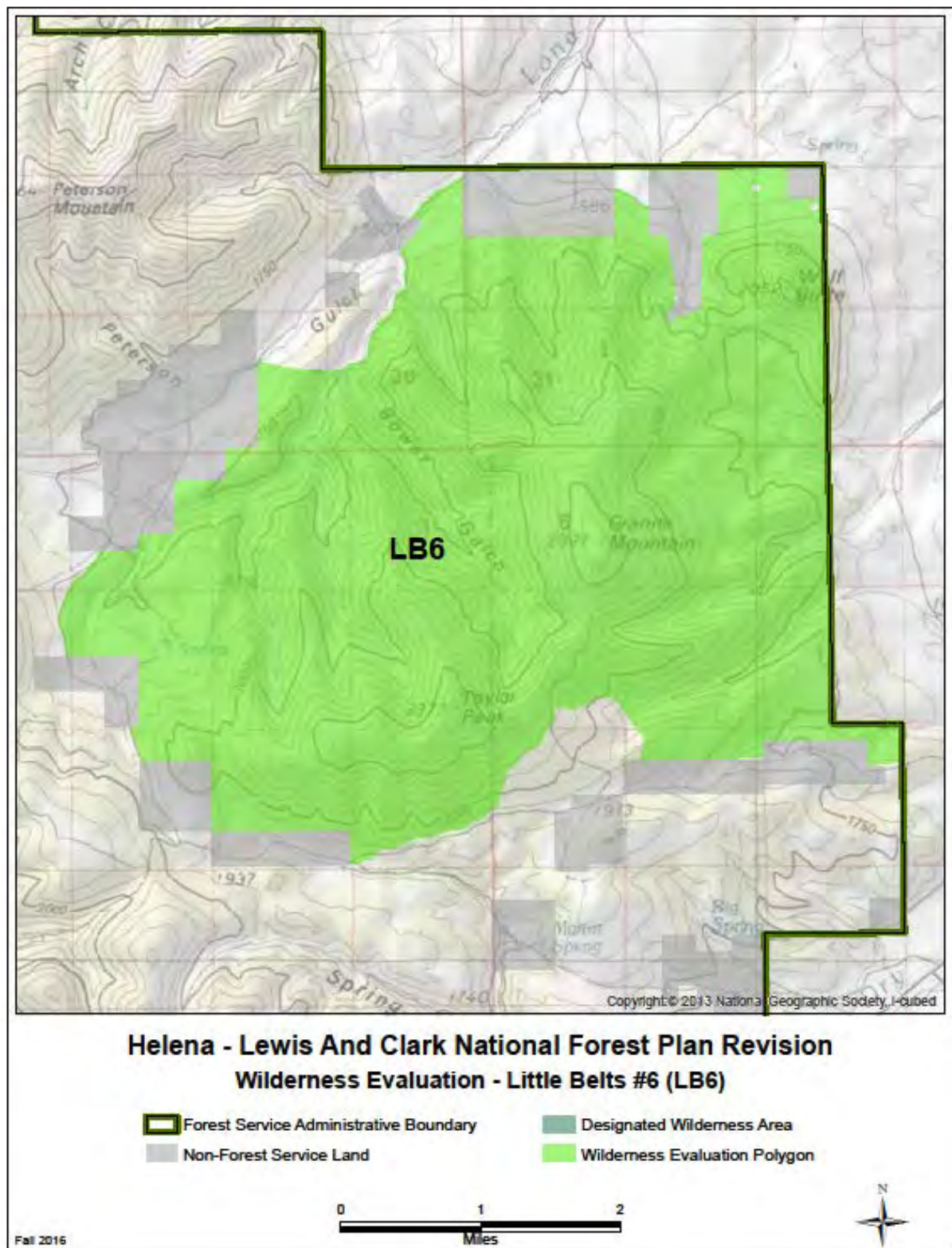
Features	Description and scale
Rare plant communities	The only potential plants of conservation known to occur in this area are <i>Pinus ablicaulis</i> and <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: none documented No rare aquatic species known.
Rare ecosystems	Whitebark pine is a candidate for listing under the ESA. Limber pine dominated forests are more common in this polygon than in most areas on the HLC NF. Whitebark pine, limber pine, ponderosa pine, and aspen are all vegetation communities of interest on the HLC NF are present in low amounts in this area. No rare aquatic ecosystems known.
Outstanding landscape features	Taylor Peak, Taylor Mountain, Wolf Butte
Historic and cultural resource sites	The one recorded cultural resource has the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	No high quality resources, area primarily dry.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 219. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Semi-circular polygon shape with irregular boundaries. Encompasses Wolf Butte, Granite Mountain, Taylor Peak, and Taylor Mountain.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal	No private inholdings. Polygon surrounded by private.

Factors	Description and scale
land in the area	
Management of adjacent lands	Private agriculture lands to the north, east, portions on the west of the polygon. Small BLM parcels on the east. Montana State lands on portions of the north. Forest Service system lands on the south and portions of the western boundary.



## Big Baldy Area (LB8)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 220. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	Lodgepole pine dominated forests are the most common dominance type in this area, covering over 41%. Douglas-fir dominated forests are also common at lower elevations (covering about 22% of the area), as are subalpine fir and Engelmann spruce mixed forests at higher elevations (covering 21%). Dry grasslands and sparsely vegetated areas (rock and scree) each cover about 6% of the area. Limber pine dominated forests are found on just over 2%. Other types are present in very small amounts (covering less than 1% of the area each), and include shrublands, ponderosa pine, whitebark pine, aspen, and juniper.
Potential vegetation types	Cool moist forest potential vegetation types dominate the area, found on about 70%. Warm dry forest types are the next most common at 16%. Dry grassland potential types are found on about 5%, and sparse vegetation types cover 6%. A small area, about 3%, are cold forest types where whitebark pine may grow. Trace amounts of shrublands and riparian types are present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 149 acres within LB8 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 23,000 acres potential lynx habitat, with approximately 9700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 28,000 acres of goshawk potential nesting habitat, some known nesting territories. 3900 acres existing but up to 24,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Presence of Clark's nutcracker indicates mature whitebark, limber, and/or ponderosa pine.</li> <li>• Approximately 18,000 acres secure elk habitat. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Roughly 22,000 acres of potential wolverine habitat; presence of black rosy-finch, pika.</li> <li>• WCT populations in Dry Wolf, Placer, Dry Fork Belt, Oti Park, NF Hoover, Carpenter (above mining impacts—acts as barrier), Bender, Palisade, and Chamberlain Creeks.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout are likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 221. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 99.8% of the area has been unaffected by past harvest. Records indicate that about 106 acres have been previously harvested, consisting primarily of a commercial thin in 1968.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.7% of LB8 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 35%, Class 2: 65%, however, the polygon is upstream of most of the impacted areas. There are some mining impacts in the polygon.
Miles of motorized road/trail within 300' of streams	23.4 miles
Noticeable wildfire suppression impacts	No fire suppression evidence on the landscape.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 222. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	The past commercial thin activity (1968) which affected less than 0.3% of this area was determined to not be substantially noticeable due to the residual trees left and time since treatment. In addition, some pile burning from 2000 to 2010 has occurred along the boundary in this area, affecting about 24 acres (less than 0.1% of the area) and was also determined to not be substantially noticeable.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Communication repeater on Big Baldy. There is a small building associated with this site.
Areas of mining activities including both abandoned and active mines.	Past mining activities concentrated in areas outside of but next to the polygon. Abandoned mines scattered throughout the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately ¾ of a mile of fencing and 1 stock water tank within LB8.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping throughout the polygon. Motorized trails throughout.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Pipeline along northern boundary. No powerlines within the polygon but visible from the within the polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of watershed treatment areas including contouring, diking, and channeling.	None known
Lands adjacent to development or activities that impact opportunities for solitude.	Obvious mining activity in the Carpenter Creek area as well as the Barker-Hughesville area.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 55 recorded cultural resources within this polygon, all represent relics of past occupation.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.1 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	Twenty recorded historic routes (156 miles) are within this polygon.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 223. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are motorized trails throughout the entire polygon.
Area available for winter motorized opportunity	No groomed trails. From Lucy Park up to Pioneer Ridge and from Pioneer Ridge to Big Baldy are open for cross country snowmobile use.
Proximity to private lands and non-Forest Service roads.	Private land inholding in North Fork of Hoover Creek. Private mining lands in Neihart Carpenter Creek and in the Barker-Hughesville area. Residential areas in the Neihart area. Western boundary formed by Highway 89.
Proximity to developed recreation sites outside of the polygon area.	Bender Trailhead, Memorial Falls, Dry Wolf Campground, Dry Wolf rental cabin, Hoover Trailhead, Aspen Campground, and Many Pines Campground.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 224. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Opportunities exist in places away from motorized trails throughout the polygon.
Primitive and semi-primitive non-motorized	Majority of the area is available for primitive and semi-primitive

Measures	Descriptions and Locations
winter recreation.	nonmotorized recreation north of the snowmobiling along Lucy Park, Pioneer Ridge and Big Baldy in the south portion of the polygon. Jefferson Creek is a heavily used non-motorized winter recreation area that is surrounded by motorized use.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, horseback riding, fishing, hiking, cross country skiing, snowshoeing, back country skiing, snowmobiling, motorbike riding, ATV riding, and dispersed camping.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 225. Size and Description**

Size of Polygon	Description
49,068 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 226. Features present**

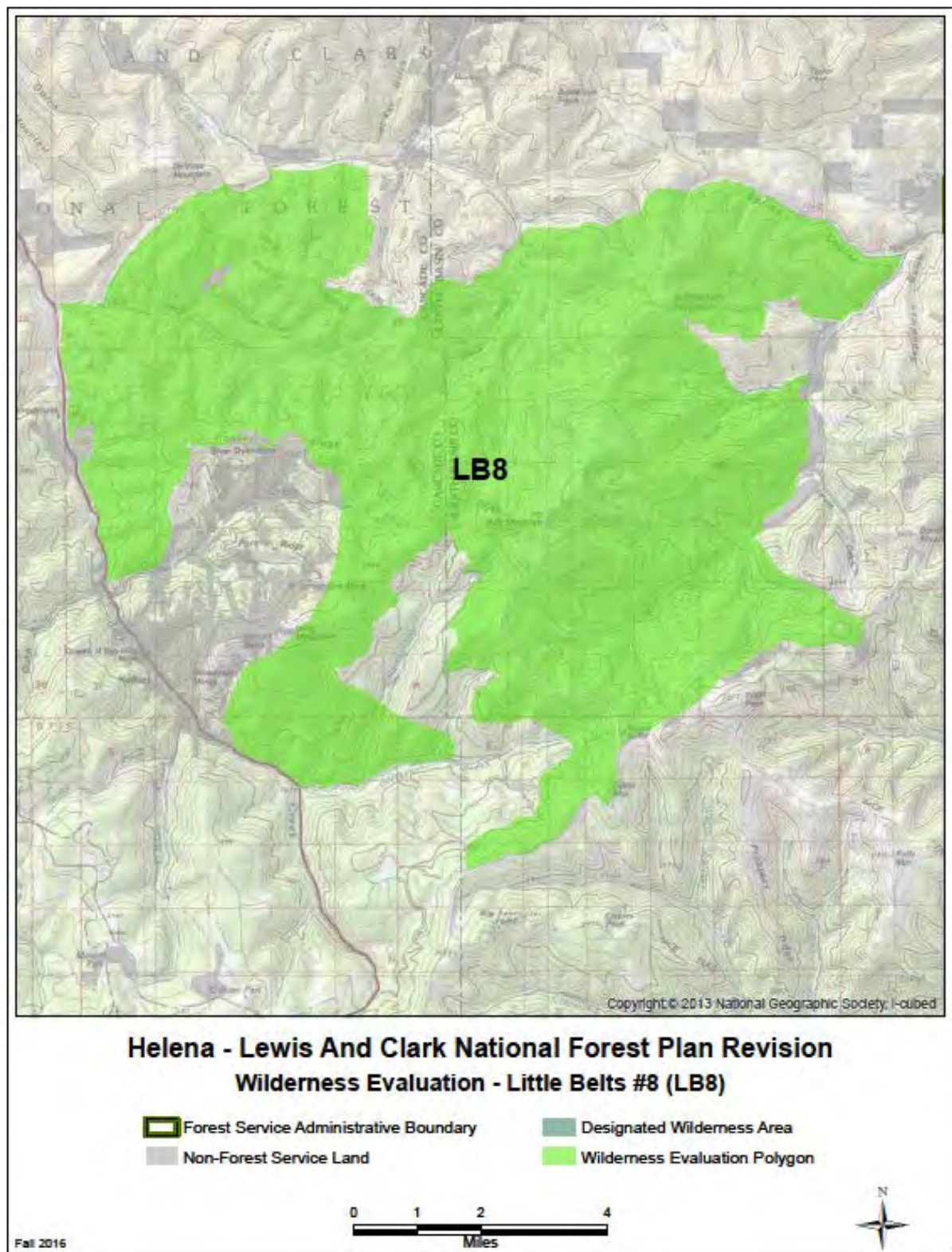
Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Botrychium spp.</i> , <i>Goodyera repens</i> , and <i>Cirsium longistylum</i> .
Rare animal species or communities	Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: Townsend's big-eared bat, black rosy finch, wolverine Several WCT populations, see above.
Rare ecosystems	Whitebark pine is a candidate for listing under the ESA, and is present in trace amounts in this area. Limber pine, ponderosa pine, and aspen are also vegetative communities of interest on the HLC NF and are present in small amounts in this area. Hoover Creek has high quality WCT population.
Outstanding landscape features	Big Baldy, Memorial Falls
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Hoover Creek has high water quality. Other streams not impacted by mining have high quality as well.



Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 227. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	Very large, irregular shaped polygon extending from Highway 89 on the west to Dry Wolf Creek road on the east. Summit of the area is Big Baldy Mountain.
Legally established rights or uses within the area	Likely some related to mining.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Superfund sites located adjacent to the polygon on the north and the south.
The presence and amount of non-Federal land in the area	Private land inholding in the North Fork of Hoover Creek.
Management of adjacent lands	Private mining lands in the Neihart-Carpenter Creek and Barker-Hughesville areas. Forest Service system lands surround the polygon. Private residential areas in Neihart, Carpenter Creek, and Dry Wolf areas.



## Eagle Creek Area (LB10)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 228. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The diversity of dominance types is relatively low in this area. The majority of the area is covered by lodgepole pine dominated forests (62%), although Douglas-fir dominated forests are also common, growing on about 21%. Dry grasslands are found on 11%. Very small amounts (representing about 1% or less of the area each) of other dominance types are present, including shrublands, rock/scree, Engelmann spruce, and aspen.
Potential vegetation types	The most common potential vegetation types in this area include cool moist forest types (found on 47%) and warm dry forest types (found on 37%). Dry grassland potential types are also common (11%). Minor amounts of other potential vegetation types also occur, including shrubland and riparian types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 7 acres within LB10 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 1400 acres potential lynx habitat, with less than 200 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 4900 acres of goshawk potential nesting. Approximately 50 acres existing and 4000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Nearly 4000 acres secure elk habitat. Moose may be present in riparian areas.</li> <li>• Roughly 3600 acres elk calving habitat contiguous with additional calving habitat in WE polygon LB11 and other NF and non-NF land.</li> <li>• Less than 30 acres potential wolverine habitat.</li> <li>• No WCT populations.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 229. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	100% of this area is unaffected by past harvest according to available records.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of LB10 is not associated with invasive plant inventories.

Measures	Outcome
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 79%, Class 2: 21% Area has heavy grazing impacts
Miles of motorized road/trail within 300' of streams	0.40 miles
Noticeable wildfire suppression impacts	No fire occurrence records since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 230. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no records of either past harvest or prescribed fire treatments in this area.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1/2 mile of fencing and 4 stock water tanks within LB10.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping on the periphery of the polygon, especially on the north and east boundaries.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.
Presence of watershed treatment areas including contouring, diking, and channeling.	None.
Lands adjacent to development or activities that impact opportunities for solitude.	Private agricultural lands to the west, south, and north. These lands are used primarily for ranching and timber harvesting.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are four recorded cultural resources within this polygon, which represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles

Improvement Type	Presence and extent of departure from naturalness
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are two recorded historic routes (9 miles).

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 231. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Entire polygon is non-motorized.
Area available for winter motorized opportunity	Entire polygon is open to snowmobiling but dense timber limits travel throughout the entire polygon.
Proximity to private lands and non-Forest Service roads.	Private lands on the north, west, and south boundaries of the polygon.
Proximity to developed recreation sites outside of the polygon area.	None.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 232. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Entire polygon is available for primitive and semi-primitive non-motorized recreation in the summer.
Primitive and semi-primitive non-motorized winter recreation.	Entire polygon is available for primitive and semi-primitive non-motorized recreation in the winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, horseback riding, fishing, snowmobiling, cross country skiing, outfitting for hunting, and mountain biking.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 233. Size and Description**

Size of Polygon	Description
6,337 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 234. Features present**

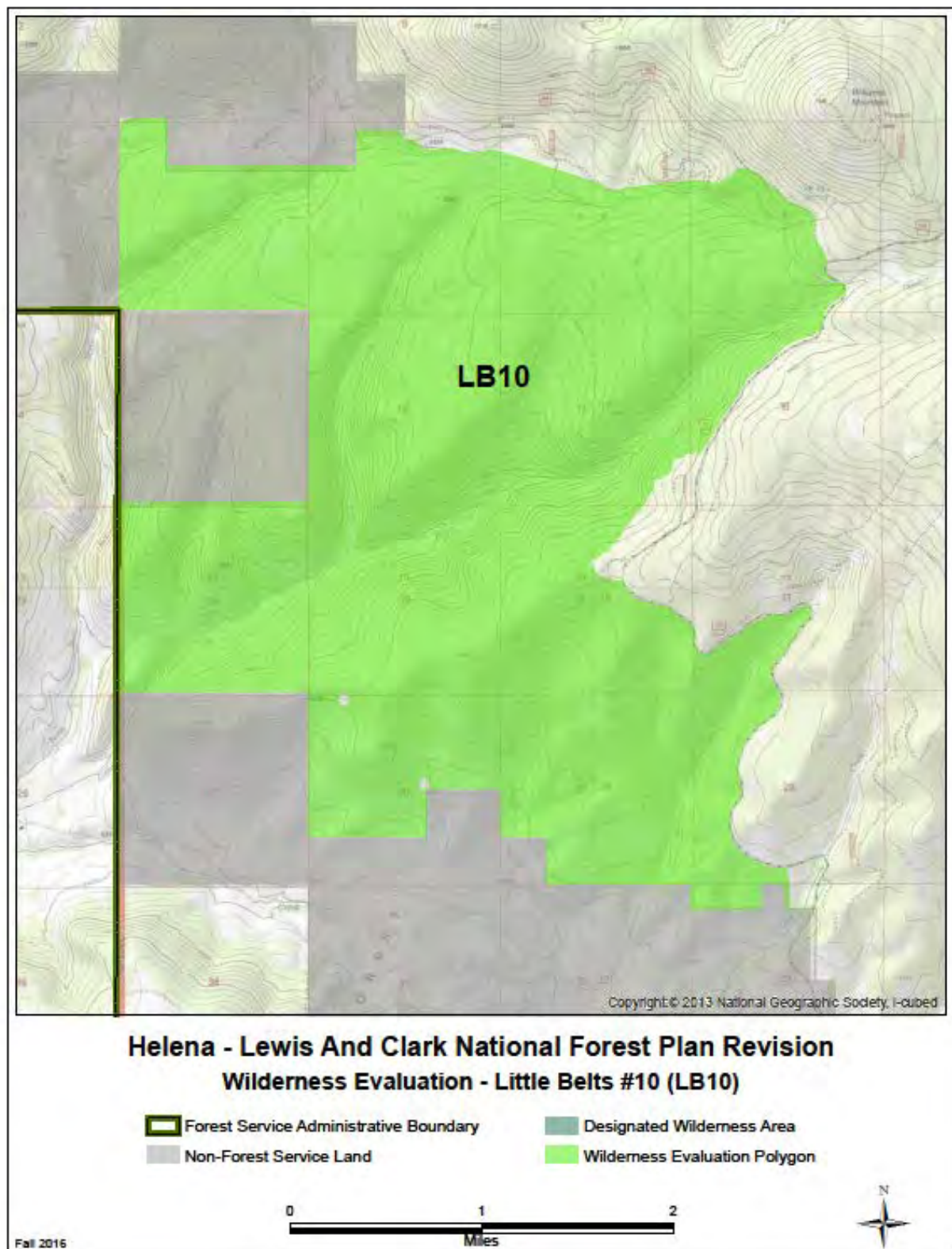
Features	Description and scale
Rare plant communities	No potential plant species of conservation concern are known to occur in this area.
Rare animal species or communities	Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: western toad No rare aquatic species.
Rare ecosystems	Aspen communities are of interest on the HLC NF due to their limited abundance and habitat importance; aspen is present in very small amounts in this area. No rare aquatic ecosystems.
Outstanding landscape features	No outstanding features.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 235. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Irregular polygon of moderate size. North, west and south sides are formed by private checkerboard ownership.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private lands surrounding on north, west, and south but no private land inholdings.
Management of adjacent lands	Private lands used for timber harvest, road building, and agriculture. Forest Service system lands on the east.





## Calf Creek Area (LB11)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 236. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are lodgepole pine dominated forests, which cover about 68% of the area. Douglas-fir dominated types are also common and growing on about 22% of the area. Subalpine fir and Engelmann spruce mixed forests are found at higher elevations, on 5% of the area. Dry grasslands cover about 3%. Trace amounts of other dominance types are present, representing 1% or less of the area each: shrublands, rock/scree, whitebark pine, limber pine, and aspen.
Potential vegetation types	The most common potential vegetation types are the cool moist forest types, representing 67% of the area. Warm dry forest types make up about 28%. Xeric grassland and xeric shrubland potential types each are found on about 2%. Trace amounts of riparian types can also be found.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 31 acres within LB11 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>Functioning mature forest habitat: Roughly 3500 acres potential lynx habitat, with approximately 675 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 10,000 acres of goshawk potential nesting habitat. Approximately 700 acres existing and 7000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>Approximately 3500 acres secure elk habitat. Roughly 1600 acres elk calving habitat contiguous with additional calving habitat in WE polygon LB10 and other NF and non-NF land. Moose may be present in riparian areas.</li> <li>Approximately 2700 acres potential wolverine habitat.</li> <li>No WCT populations.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 237. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Records show that over 99.9% of this area is unaffected by past timber harvest. About 11 acres (0.08%) were impacted by harvests (salvage and clearcut) in 1957 and 1958.



Measures	Outcome
% of area without known invasive weeds	According to data as of 2/10/2016, 99.8% of LB11 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 9%, Class 2: 91% Grazing Impacts, motorized trails
Miles of motorized road/trail within 300' of streams	11.6 miles, motorcycle trails along Calf and Allan Creeks.
Noticeable wildfire suppression impacts	No fire suppression impacts evident on landscape.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 238. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	The 11 acres of past harvest that occurred in this area in the 1950's affected 0.08% of the area and are no longer substantially noticeable due to the time that has passed. In addition, about 217 acres (1.72% of the area) have been impacted by prescribed fire treatments, consisting of underburns in 2012 and 2014. These treatments occurred near the southern boundary and were also determined to not be substantially noticeable due to their effects appearing similar to low severity wildfire.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1/10 <sup>th</sup> of a mile of fencing within LB11.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed camping on the periphery of the polygon and dispersed camping along Moose Creek Road.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.
Presence of watershed treatment areas including contouring, diking, and channeling.	None.
Lands adjacent to development or activities that impact opportunities for solitude.	Polygon has several motorized trails that cross the middle of the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 20 recorded cultural resources within this polygon, all represent relics of past occupations.

Improvement Type	Presence and extent of departure from naturalness
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.4 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 12 recorded historic routes (75 miles)

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 239. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Motorized trails throughout the polygon.
Area available for winter motorized opportunity	Entire polygon is open for snowmobile use.
Proximity to private lands and non-Forest Service roads.	Private lands to the south have harvest activities and cattle grazing. No private inholdings in the polygon.
Proximity to developed recreation sites outside of the polygon area.	Calf Creek Rental Cabin, Sheep Creek Fishing Access, Moose Creek Campground.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 240. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Two non-motorized trail segments in West Fork of Calf Creek and Cabin Creek. Primitive non-motorized recreation is limited.
Primitive and semi-primitive non-motorized winter recreation.	Most of the polygon is available for snowmobiling. Trail in West Fork of Calf Creek is available for primitive non-motorized use.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, horseback riding, mountain biking, fishing, motorcycle use, dispersed camping and snowmobiling.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 241. Size and Description**

Size of Polygon	Description
12,598 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 242. Features present**

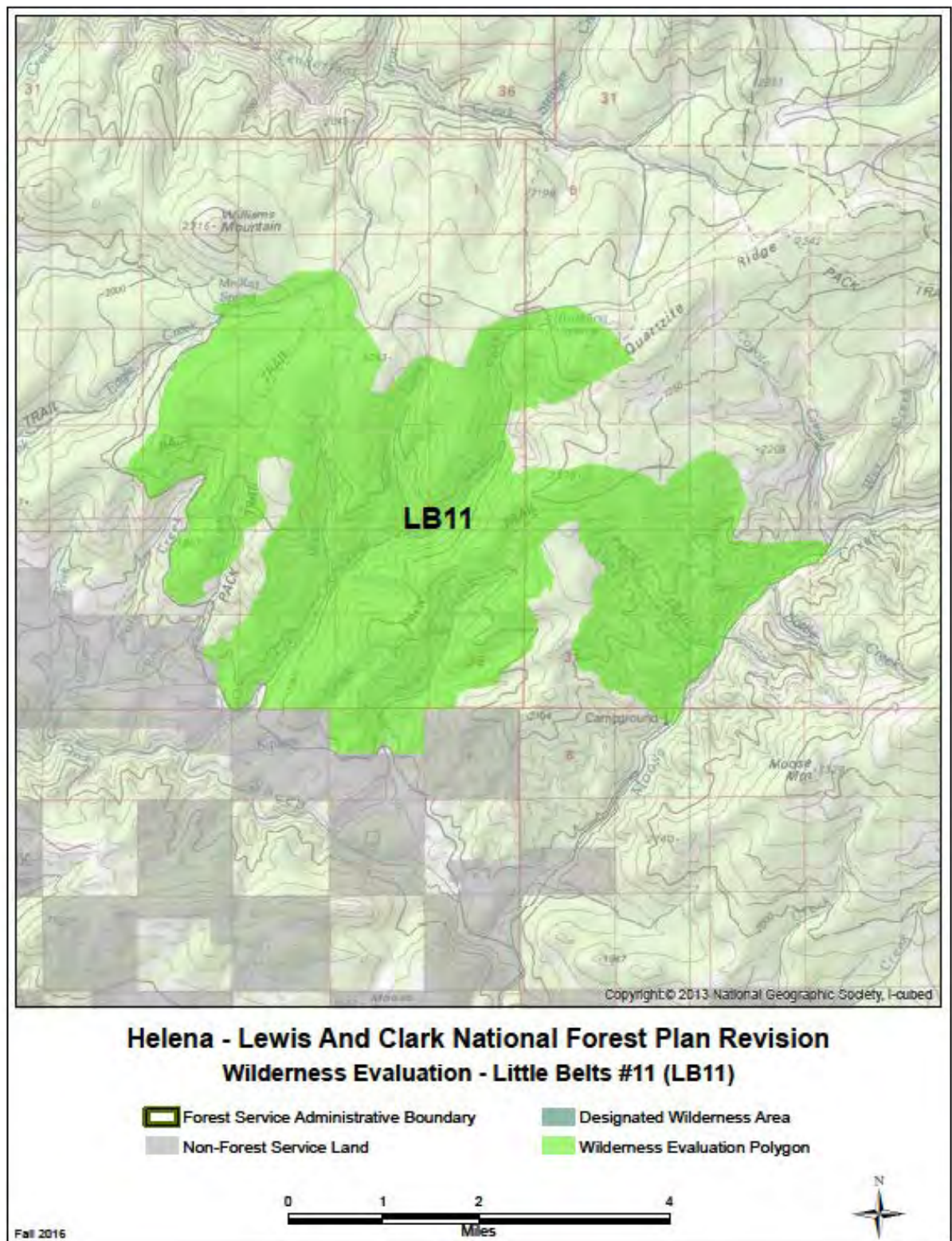
Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Agoseris lackschewitzii</i> .
Rare animal species or communities	Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: wolverine No rare aquatic species.
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and may be present in trace amounts in this area. Ponderosa pine, limber pine, and aspen are all vegetative communities of interest on the HLC NF and are also present in very small amounts. No rare aquatic ecosystems.
Outstanding landscape features	Allen Park, Crescent Park, Williams Park
Historic and cultural resource sites	All recorded cultural resource within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 243. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Moderate sized irregular shaped polygon south of Tenderfoot Creek Experimental Forest in Calf Creek and Pole Creek. Substantially noticeable timber harvesting and road building make intrusions into the polygon area.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to	None known.

<b>Factors</b>	<b>Description and scale</b>
protect wilderness characteristics	
The presence and amount of non-Federal land in the area	Private lands to the south outside of the polygon. No private land inholdings.
Management of adjacent lands	Private lands to the south. Forest Service to the north, west, and east. Tenderfoot Creek Experimental Forest to the north.



## North Fork Smith Area (LB15)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 244. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area include subalpine fir and Engelmann spruce mixed forests, which cover about 34% of the area, and Douglas-fir dominated forests, which cover about 31%. Lodgepole pine forests are also found on 6%, and dry grasslands on 9%. A substantial portion – about 15% - of this area is considered “transitional”, where no dominance type is identified yet as forests are regenerating after a disturbance (the Ant Park fire). Whitebark pine forests are found on over 3% of this area. Other dominance types can be found in trace amounts – less than 1% of the area each – including shrublands and limber pine.
Potential vegetation types	The most common potential vegetation types are warm dry forest types, covering 46% of the area. Cool moist forest potential types are also common (39%), and cold forest types (where whitebark pine grows best) are found on about 5%. Dry grassland potential types are found on about 7% of the area. Other types that are present in small amounts include mesic grassland, mesic shrubland, and xeric shrubland potential types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 2 acres within LB15 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: Roughly 2500 acres potential lynx habitat, with approximately 1700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 3500 acres of goshawk potential nesting habitat, with some known nest territories. Both lynx and goshawk habitat of greatest value when in combination with similar habitat to SE, not in WE polygons. Approximately 400 acres existing and 5400 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Presence of boreal owl also indicates functioning mature, high elevation forest with complex structure in some areas</li> <li>• Approximately 4200 acres secure elk habitat. Roughly 300 acres elk calving habitat and less than 150 acres winter range contiguous with additional calving and winter habitat on adjacent non-NF land.</li> <li>• Approximately 5000 acres potential wolverine habitat with roughly 540 acres of potential maternal habitat. Moose may be present in riparian areas.</li> <li>• No WCT populations.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 245. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	100% of this area has been unaffected by past harvest, according to available records.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of LB15 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 100%, but most impacts occur outside the polygon
Miles of motorized road/trail within 300' of streams	0.2 miles
Noticeable wildfire suppression impacts	Lost Fork Fire (2001) & Ant Park Fire (2003): Dozer line rehabbed; dozer/hand lines in grass habitats/recovered; breaks in timber continuity in N. Fork Smith River & N. Fork Musselshell River.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 246. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	This area has been unaffected by harvest. However, about 207 acres (just over 2% of the area) have been affected by prescribed burning, consisting of underburning in 1997 and 1998, and less than an acre of pile burning in 2003. Due to the type of treatment and time since treatment, these treated areas were determined to be no longer substantially noticeable. More expansive treatment areas do exist adjacent to the polygon.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 4.6 miles of fencing within LB15.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No outfitter camps. Dispersed recreation areas around Spur Park, Ant Park, along FSR 47 on the eastern boundary, and along the northern boundary of the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Two Dot powerline forms the east and northeast boundary.



Improvement Type	Presence and extent of departure from naturalness
Presence of watershed treatment areas including contouring, diking, and channeling.	None
Lands adjacent to development or activities that impact opportunities for solitude.	None present.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Ant Park Warming Hut. There are 4 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	3.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	One recorded historic routes (6miles) lies within this polygon.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 247. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	No motorized trails within the polygon.
Area available for winter motorized opportunity	Entire polygon open to snowmobiling.
Proximity to private lands and non-Forest Service roads.	Private lands and BLM parcels to the south.
Proximity to developed recreation sites outside of the polygon area.	Ant Park Warming Hut.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 248. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized recreation in the summer.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized recreation in the winter but cross country snowmobiling is allowed but use is limited due to heavy timber.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, fishing, and snowmobiling.



Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 249. Size and Description**

Size of Polygon	Description
9,817 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

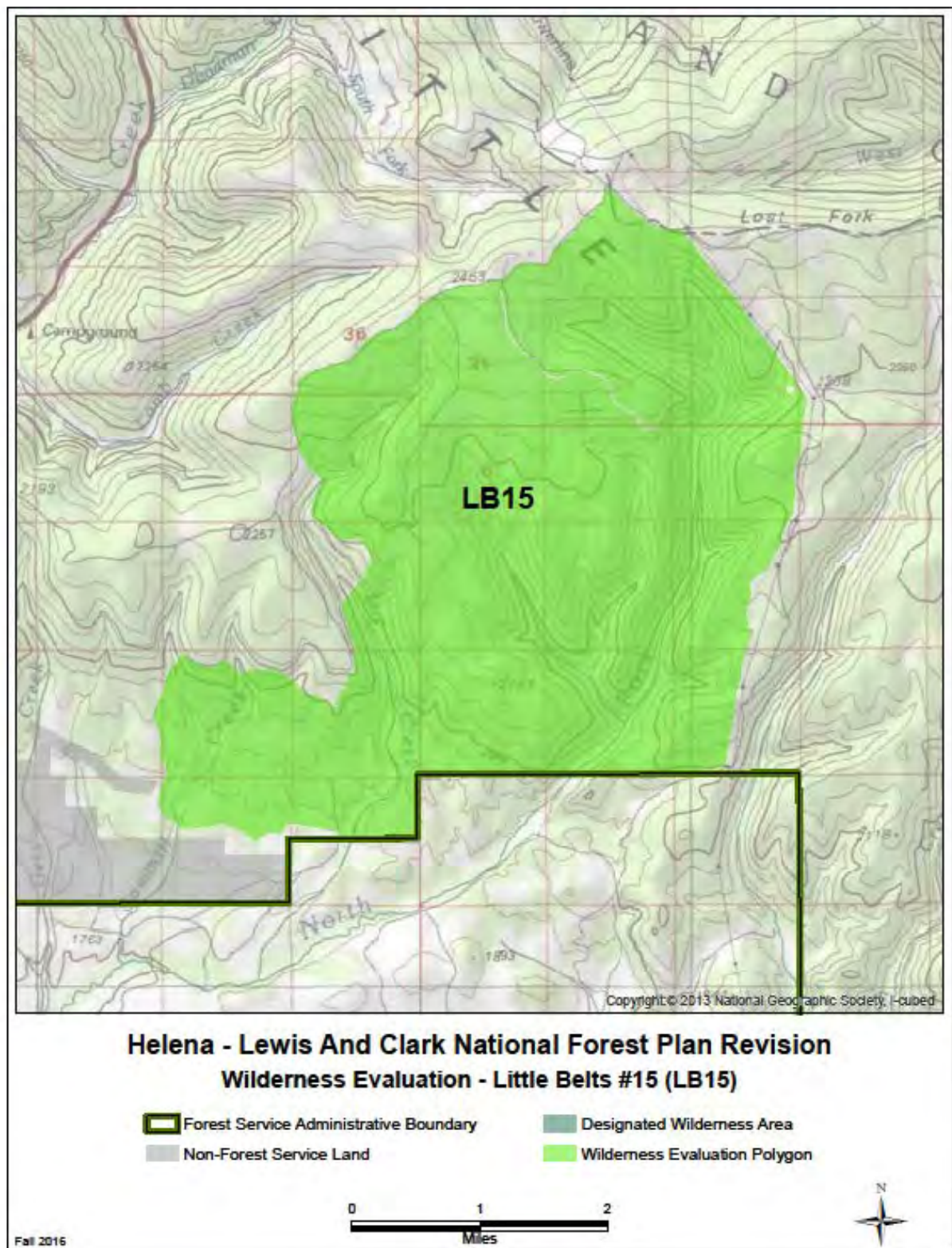
**Table 250. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Cirsium longistylum</i> , and <i>Phlox kelseyii</i> var. <i>Missoulensis</i> .
Rare animal species or communities	Federally listed species: transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: western toad No rare aquatic species.
Rare ecosystems	Whitebark pine is a candidate species under the ESA and is present in this area. Limber pine communities are also of interest on the HLC NF and are found in small quantities. No rare aquatic ecosystems.
Outstanding landscape features	None present.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Very little water in polygon. Large spring (head of NF Smith) is on edge of polygon, but stream is dry within polygon.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 251. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Smaller polygon in the upper end of the North Fork of Smith Creek.
Legally established rights or uses within the area	Two Dot electrical line.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	None present.
Management of adjacent lands	Forest Service system lands on north, west and east. Private lands and BLM on the south.



## Middle Fork Judith Area (LB16)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 252. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area consist of Douglas-fir dominated forests which can be found on about 41% of the area. Subalpine fir and Engelmann spruce mixes are also common, growing on over 22%. Lodgepole pine forests dominate about 15%. Dry grasslands are the next most common, and are found on about 8% of the area. Limber pine forests are present on nearly 6%. Other dominance types are present in very small amounts – covering 1% or less of the area each – including shrublands, ponderosa pine, rock/scree, and whitebark pine. Although several large fires have occurred in this area over the years, only 2% are still considered in “transition” (or regenerating).
Potential vegetation types	This area is dominated by cool moist forest potential vegetation types, which are found on 55% of the area and likely to support lodgepole pine, subalpine fir, and Engelmann spruce along with Douglas-fir. About 33% of the area has warm dry forest potential types, where Douglas-fir is also common. About 7% of the area has a dry grassland potential type, and nearly 2% has a cold forest type where whitebark pine is most likely to grow. Small amounts of other potential vegetation types are present, including shrubland and riparian types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 104 acres within LB16 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 46,000 acres potential lynx habitat, with approximately 34,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 50,000 acres of goshawk potential nesting habitat, with some known nest territories. Both lynx and goshawk habitat of greatest value when in combination with similar habitat to SE, not in WE polygons. Approximately 19,000 acres existing and over 40,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size.</li> <li>• Approximately 57,000 acres secure elk habitat. Roughly 17,000 acres elk calving habitat and less than 1200 acres winter range contiguous with additional calving and winter habitat on adjacent non-NF land. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Approximately 41,000 acres potential wolverine habitat with roughly 5700 acres of potential maternal habitat. Black rosy finches documented.</li> <li>• WCT populations in Elk, Yogo, WF Stiner, Corral, Harrison, Cleveland, and Weatherwax Creeks and Lost Fork Judith River.</li> </ul>

Plant and Animal Communities	Composition
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native fish likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 253. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Over 99% of the area is unaffected by past timber harvest. Records indicate that about 199 acres have been harvested in the past, consisting of commercial thinning, salvage, shelterwood, and clearcutting activities that occurred from 1958 to 1985.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of LB16 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 25%, Class 2: 50%, Class 3: 25%; Lower Middle Fork Judith River (and watershed) heavily impacted by road crossings and grazing. Upper Watershed, Cleveland Creek, high quality.
Miles of motorized road/trail within 300' of streams	27.8 miles
Noticeable wildfire suppression impacts	<i>Sandpoint fire (1985) &amp; Russian Flats Fire (2008):</i> All dozer/handlines rehabbed; breaks in timber continuity; old rotten stumps from fireline suppression efforts. <i>Lost Fork Ridge Fire (2000):</i> Dozerline rehabbed; dozer/hand lines in grass habitats/recovered; breaks in timber continuity in W. Fork Lost Fork Creek, Burris and Sandpoint Creek. <i>Lost Fork Fire (2001):</i> Dozerline rehabbed; dozer/hand lines in grass habitats/recovered; breaks in timber continuity in N. Fork Smith River & N. Fork Musselshell River. <i>Ant Park (2003):</i> Dozerline rehabbed; 200' wide fuel break created by fellerbuncher and 100% timber removed within corridor; breaks in timber continuity. Powerline ROW clearing. Hazardous tree harvest along road to N.fork Smith River and where ties in with Sandpoint fire scar.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 254. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	Russian Flats Airstrip not in but south of the polygon
Presence of timber harvest or prescribed fire areas	Past harvest has impacted less than 1% of the area (199 acres) from 1958 to 1985 – due to the time since treatment and/or type of treatment, these areas have been determined to not be substantially noticeable today. Additional areas (about 414 acres) have been impacted by prescribed burning treatments as well, consisting primarily of pile burning from 1982 to 2003.

Improvement Type	Presence and extent of departure from naturalness
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	A few abandoned mines on north and west side of polygon
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1/10 <sup>th</sup> of a mile of fencing and 7 stock water tanks within LB16. In addition there have been 321 acres of vegetation improvements conducted within LB16.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Two outfitter camps on Forest Service; both within the Lost Fork Judith. Dispersed camping scattered throughout.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Two Dot electrical line borders the polygon on the southwest side.
Presence of watershed treatment areas including contouring, diking, and channeling.	None
Lands adjacent to development or activities that impact opportunities for solitude.	Motorized roads and trails on the north side of the polygon including: Woodchopper Ridge trail, Kelly Mountain trail and Middle Fork Judith road. Private land in the middle of the polygon. Additional motorized trails and use on the periphery of the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Burris Cabin in Lost Fork Judith Creek. There is approximately 84 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 21 recorded historic routes (97 miles) within this polygon.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 255. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized	Motorized trails limited to the northeast portion of the polygon.

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
opportunity	Open road to private lands in the Middle Fork Judith drainage.
Area available for winter motorized opportunity	Open to snowmobile use in the outer 1 mile perimeter of the polygon. Core of the polygon is closed to snowmobile use.
Proximity to private lands and non-Forest Service roads.	Private land inholdings within the core of the polygon. Private lands in the Grendah Mountain and Yogo Peak areas.
Proximity to developed recreation sites outside of the polygon area.	Judith Guard Station cabin rental, Judith Campground. Holiday Camp Trailhead, Indian Hill Campground, Hay Canyon Campground, Dry Pole Campground, Musselshell Warming Hut, Bear Gulch SST, recreation residences in Middle Fork Judith and on Sandpoint Ridge.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 256. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Majority of the area is available for primitive and semi-primitive non-motorized recreation in summer.
Primitive and semi-primitive non-motorized winter recreation.	Majority of the area is available for primitive and semi-primitive non-motorized recreation in winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Horseback riding, fishing, hunting, mountain biking, motorcycle riding, ATV riding, dispersed camping, cross country skiing, snowshoeing outfitting in the fall, and snowmobiling along the periphery.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 257. Size and Description**

Size of Polygon	Description
98,311 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 258. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Phlox kelseyii</i> var. <i>Missoulensis</i> , <i>Goodyera repens</i> , <i>Cirsium longistylum</i> , and <i>Aquilegia brevistyla</i> .
Rare animal species or communities	Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk

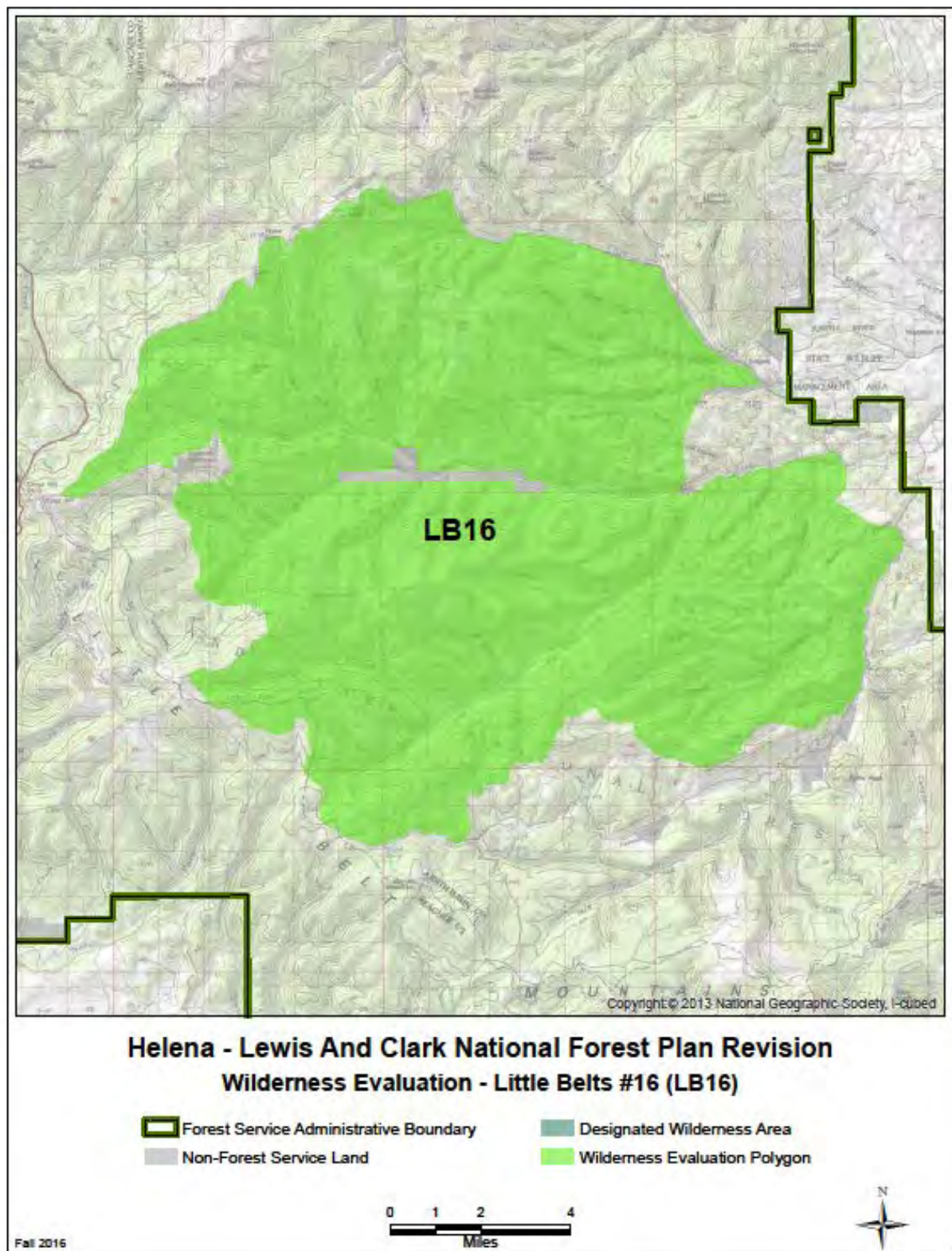
Features	Description and scale
	species: wolverine, black rosy finch, western toad, dwarf shrew Multiple drainages with WCT populations, see above.
Rare ecosystems	Whitebark pine is a candidate species under ESA and is present in small amounts in this area. Limber pine forests are more extensive here, and are a vegetative community of interest on the HLC NF. No rare aquatic ecosystems known
Outstanding landscape features	Middle Fork Judith River, Yogo Peak is on the northern boundary.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Upper watershed/ Cleveland Creek high quality. Middle and SF (on southeast boundary of polygon) Judith River on list of potentially eligible WSRs. Both streams are listed for outstanding cultural values, and the South Fork is also listed for the outstanding WCT fishery.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 259. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	This large polygon takes in the upper most reaches of the Middle Fork of the Judith River. There are some private land inholdings within the center of the polygon but otherwise very little development.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Majority of the area is designated the Middle Fork Judith Wilderness Study Act area.
The presence and amount of non-Federal land in the area	Private land inholdings in the center of the polygon. Private lands in the Grendah Mountain and Yogo Peak area.
Management of adjacent lands	Polygon surrounded by Forest Service system lands. Judith River State Wildlife Management area outside of the polygon to the northeast.







## East Little Belts Area (LB18)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 260. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are forests dominated by Douglas-fir, which cover over 42% of the area. Roughly 21% of the area has lodgepole pine dominated forest cover, and subalpine fir and Engelmann spruce mixes are found on 15%, at the higher elevations. Limber pine dominated forests also represent a fairly substantial amount of the area (over 13%), and dry grasslands are present on about 4%. Trace amounts (generally covering 1% or less of the area each) of other dominance types are also present, including shrublands, ponderosa pine, whitebark pine, and juniper. Nearly 2% is considered sparsely vegetated (i.e., scree or rock).
Potential vegetation types	The most common potential vegetation types are warm dry forest types, representing over 56% of the area. These sites likely support most of the ponderosa pine, limber pine, and Douglas-fir forests described above. Cool moist forest potential vegetation types are also common, on 38% of the area, and likely correspond to the lodgepole pine, subalpine fir, and Engelmann spruce forests. Dry grassland types are found on about 3%. Trace amounts of other potential vegetation types are also present, including cold forest (where whitebark pine may be found), shrubland, and riparian types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 1,369 acres within LB18 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 37,000 acres potential lynx habitat, with approximately 21,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 58,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 6500 acres existing and over 50,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Clark's nutcracker presence indicates mature whitebark, limber, and/or ponderosa pine communities.</li> <li>• Approximately 36,000 acres secure elk habitat. Roughly 5700 acres elk calving habitat and 11,000 acres winter range contiguous with additional calving and winter habitat on adjacent non-NF land. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Approximately 25,000 acres potential wolverine habitat with roughly 900 acres of potential maternal habitat.</li> <li>• No WCT populations.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 261. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 99.9% of this area has had no past timber harvest. Roughly 102 acres were affected by past harvest according to available records, consisting of commercial thinning, salvage cutting, and single-tree selection cutting that occurred from 1960 to 1993.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.7% of LB18 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 36%, Class 2: 62%, Class 3: 2% Impacts are primarily motorized trails and grazing.
Miles of motorized road/trail within 300' of streams	105 miles
Noticeable wildfire suppression impacts	No fire suppression impacts evident on landscape.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 262. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	In addition to the 102 acres of past harvest (0.1% of the area), consisting of commercial thinning, salvage cutting, and single-tree selection cutting that occurred from 1960 to 1993, there have also been about 1,514 acres (1.43% of the area) of prescribed fire treatments in this area. The fire treatments consisted of broadcast burning, jackpot burning, and underburning from 1963 to 2015. 98.48% of the area remains unaffected by vegetation treatments. Due to the time since treatment and/or the type of treatment (fire), none of the treatments within the evaluation boundary are considered to be substantially noticeable. The treatments are generally clustered in one area (near Jellison Place) and could be excluded from the polygon if desired.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Communication sites on Mount High and one on Stevens Butte. Mount High has a small building. The site on Steven Butte has a large cinder block building and towers with evidence of old electrical lines.
Areas of mining activities including both abandoned and active mines.	There are a few abandoned mines on the west end of the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 4 miles of fencing and 15 stock water tanks within LB18.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Outfitter camps in Jellison Place and Antelope Gorge. Dispersed camping throughout.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Old electrical lines to Stevens Butte communication site.
Presence of watershed treatment areas including contouring, diking, and channeling.	None
Lands adjacent to development or activities that impact opportunities for solitude.	Heavy dispersed recreation on the southern and western borders of the polygon. Motorized trails throughout the polygon.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Stevens Butte building. Buildings associated with Lucky Boy mine in Basin Creek. There are approximately 60 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.4 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 16 recorded routes (67 miles) within this polygon.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 263. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	The entire polygon has authorized motorized jeep, ATV and motorcycle trails for summer recreational use.
Area available for winter motorized opportunity	Southern portion of the polygon is open for snowmobile motorized use. Bartleson RNA is closed for winter motorized use.
Proximity to private lands and non-Forest Service roads.	Private agriculture lands on the northern, eastern and southern boundaries of the polygon.
Proximity to developed recreation sites outside of the polygon area.	Jellison Place Trailhead and Campground, Basin Creek, Spring Creek Campground, Daisy Dean Campground and Trailhead, Haymaker dispersed site, Dry Pole dispersed site, Pierce Park Trailhead.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 264. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	There are limited opportunities for primitive and semi-primitive non-motorized recreation in the summer.
Primitive and semi-primitive non-motorized winter recreation.	The northern portion of the polygon has some opportunity for primitive and semi-primitive non-motorized recreation in the winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, horseback riding, fishing, hiking, snowmobiling, motorbike riding, ATV riding, jeep trail/UTV riding and dispersed camping.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 265. Size and Description**

Size of Polygon	Description
106,178 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 266. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Aquilegia brevistyla</i> , <i>Goodyera repens</i> , <i>Cirsium longistylum</i> , and <i>Polygonum douglasii</i> spp. <i>Austinae</i> .
Rare animal species or communities	Federally listed species: Transient lynx could be occasionally present, but area is not within or contiguous with areas occupied by lynx. Potential species of conservation concern and/or state at risk species: none documented No rare aquatic species present
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and is present in trace amounts in this area. Limber pine communities are also of interest on the HLC NF because they are generally rare and under consideration as a potential SCC; this forest type is present in relatively high abundance in this area, as are the characteristic rocky, limestone ridges where it thrives. No rare aquatic ecosystems present.
Outstanding landscape features	Daisy Notch, Morrisy Narrows, Haymaker Narrows, Nevada Narrows, Daisy Narrows
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational or historic value.
Research Natural Areas	Bartleson Peak

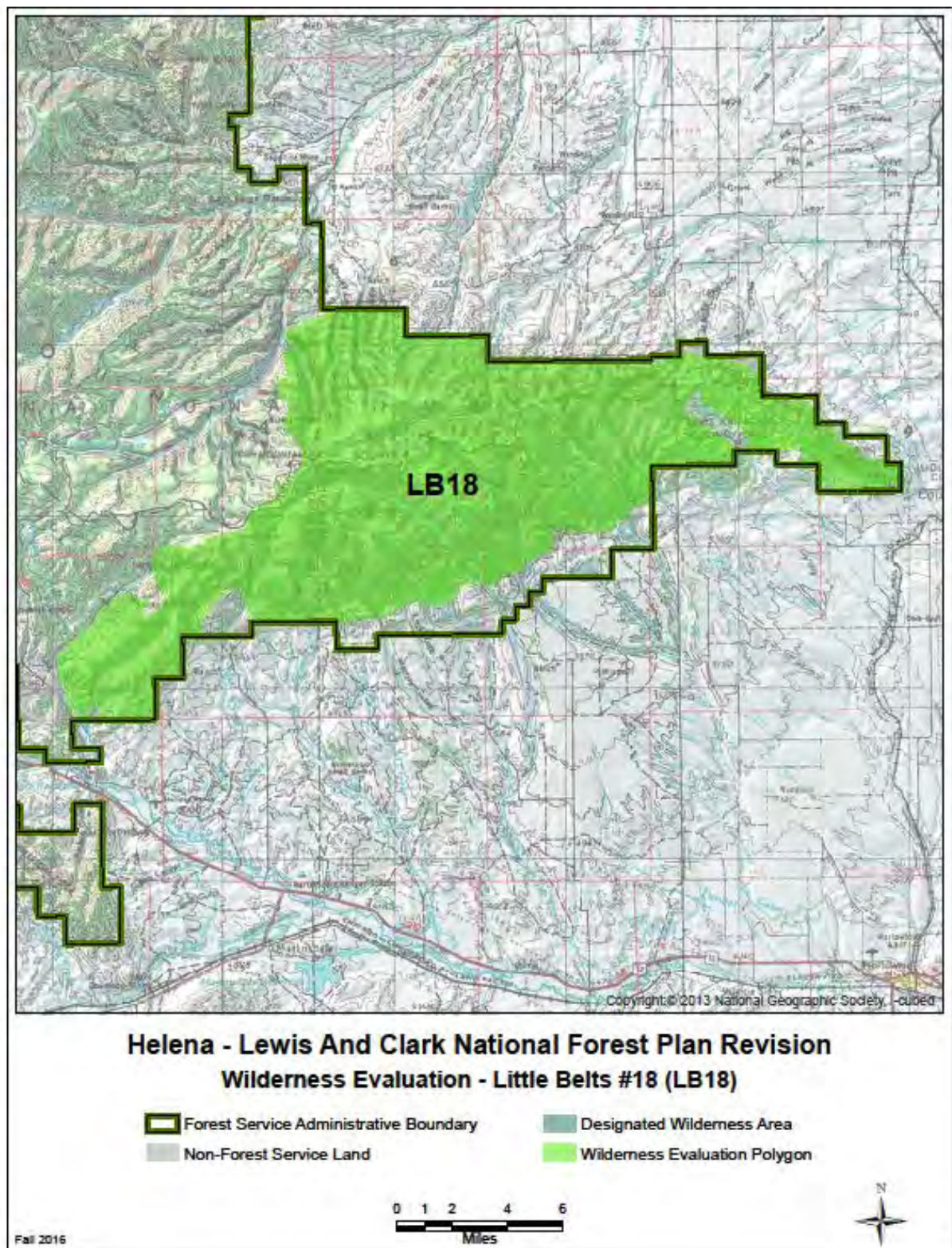
Features	Description and scale
High quality water resources or important watershed features	None

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 267. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	A large linear shaped polygon that stretches from Dry Pole Canyon/Daisy Peak east to the Forest Service boundary in Roberts Creek. The polygon includes both sides of the divide between the Musselshell and Judith Ranger Districts.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Haymaker WMA is located south and outside of the polygon.
The presence and amount of non-Federal land in the area	Private lands surround the polygon but no private land inholdings.
Management of adjacent lands	Private agriculture lands on the norther, eastern and southern boundaries of the polygon. Forest Service system lands along portions of the southern boundary as well as the western boundaries. BLM lands along the northern boundary.





## Rocky Mountain Range Geographic Area

### Badger Two Medicine Area (RM1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 268. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area include Douglas-fir dominated forests (covering about 22%); lodgepole pine dominated forests (covering 15%), and subalpine fir and Engelmann spruce mixed forests (covering 24%). There is a substantial amount of the area that is sparsely vegetated (14%), due to rocky and cliffy areas; and about 7% is covered by grasslands. In addition, a substantial proportion of the area (15%) is considered to be "transitional" in terms of vegetation due to recent wildfire activity. In these areas, forests will likely regenerate but are not yet typed. The recent fires include the Skyland, Challenge Creek, and Family Peak fires which affected more than half of the area. Trace amounts of other dominance types are also present, including shrublands, whitebark pine, limber pine, cottonwood, and aspen.
Potential vegetation types	The area is dominated by cool moist forest potential vegetation types, which are found on about 52% and likely support mixes of Douglas-fir, lodgepole pine, subalpine fir, and Engelmann spruce. About 22% of the area has a warm dry forest potential vegetation type, where Douglas-fir is also common. About 4% of the area has a cold forest potential type, where whitebark pine is most likely to be found. Dry grassland types make up about 4%, and mesic grasslands about 2%. The sparsely vegetated areas (14%) do not have a potential vegetation type. Trace amounts of shrubland and riparian potential types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 2,596 acres within RM1 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 55,000 acres potential lynx habitat, with approximately 17,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 28,000 acres of goshawk potential nesting habitat, at least 3 known nesting territories.</li> <li>• Big game: Approximately 120,000 acres secure elk habitat. 24,000 acres elk winter range and 9500 acres elk calving habitat, both tied to similar on adjoining Blackfeet Indian Reservation. Moose present. Up to 60,000 acres mountain goat habitat including kidding areas</li> <li>• Functioning subalpine/alpine habitat: Roughly 84,000 acres of potential wolverine habitat including 46,000 acres potential maternal habitat.</li> <li>• Grizzly bears, wolves present.</li> <li>• Harlequin ducks in most major streams.</li> </ul> <p>WCT present in SF Two Medicine River and tributaries as well as North Badger, Lee, Badger Cabin, Red Poacher, South</p>

Plant and Animal Communities	Composition
	Badger, Lonesome, Muskrat, and Elbow Creeks. The South Badger and tributaries portion is a meta-population.
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 269. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Over 99.8% of the area has been unaffected by past timber harvest. Available records show that about 224 acres were harvested in the past, consisting of commercial thinning and single-tree selection in 1987 and a patch clearcut in 2002.
% of area without known invasive weeds	According to data as of 2/10/2016, 97.9% of RM1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 85%, Class 2: 15%; All impacts are downstream of the polygon
Miles of motorized road/trail within 300' of streams	2.3 miles
Noticeable wildfire suppression impacts	Skyland Fire (2007) & Family Peak Fire (2015): Dozer and hand lines rehabbed, some still evident on landscape on northeastern boundary of fire perimeter.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 270. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	Over 99% of the area has been unaffected by past vegetation treatments. In addition to the 224 acres of harvest that occurred, about 17 acres were affected by pile burning. None of these treatments are considered substantially noticeable. Substantial recover time has occurred since the thinning and selection treatments which left ample reserve trees. A patch clearcut would typically be considered noticeable, but aerial imagery and District expertise determined that this treatment was also not noticeable. There may have been other historic treatments in the area, or the exercising of tribal rights related to harvest, which are not recorded in the available data.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Electronic site on Mount Baldy and Half Dome Crag are visible from within RM1.
Areas of mining activities including both abandoned and active mines.	One abandoned mine in Muskrat Creek.



Improvement Type	Presence and extent of departure from naturalness
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	Fences in the northern and eastern part of the parcel.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	One active outfitter base camp at the confluence of Benson and Two Medicine River. Summit Campground and Trailhead along Highway 2 (not touching the polygon). There is a trail access point at Palookaville.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Utility corridor along Highway 2 but is outside of polygon. None within polygon.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known
Lands adjacent to development or activities that impact opportunities for solitude.	Railway, utility corridor, and campground along Highway 2. Electronic site on Mount Baldy which is access by SUP road.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 69 recorded cultural resources within this polygon, all represent relics of past occupation. The Badger-Two Medicine Traditional Cultural District is also within this polygon.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.1 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	Twenty-four recorded historic routes (122 miles) are within this polygon. Most of these routes are historic trails.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 271. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are no areas available for summer motorized recreation in this polygon.
Area available for winter motorized opportunity	There are no areas available for winter motorized recreation in this polygon
Proximity to private lands and non-FS roads.	Private land inholdings on the north and east.
Proximity to developed recreation sites outside of the polygon area.	Summit Campground, Summit TH, False Summit, and Lubec TH along Highway 2. Can hear these activities from within the polygon. Can hear the train from the Badger Cabin.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 272. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, outfitting, horseback riding, hiking, fishing, mountain biking (not specifically designed), cross country skiing in the north end. Unauthorized snowmobiling occurring in Pool Creek and Crescent Cliffs.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 273. Size and Description**

Size of Polygon	Description
125,795 acres	The polygon is over 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 274. Features present**

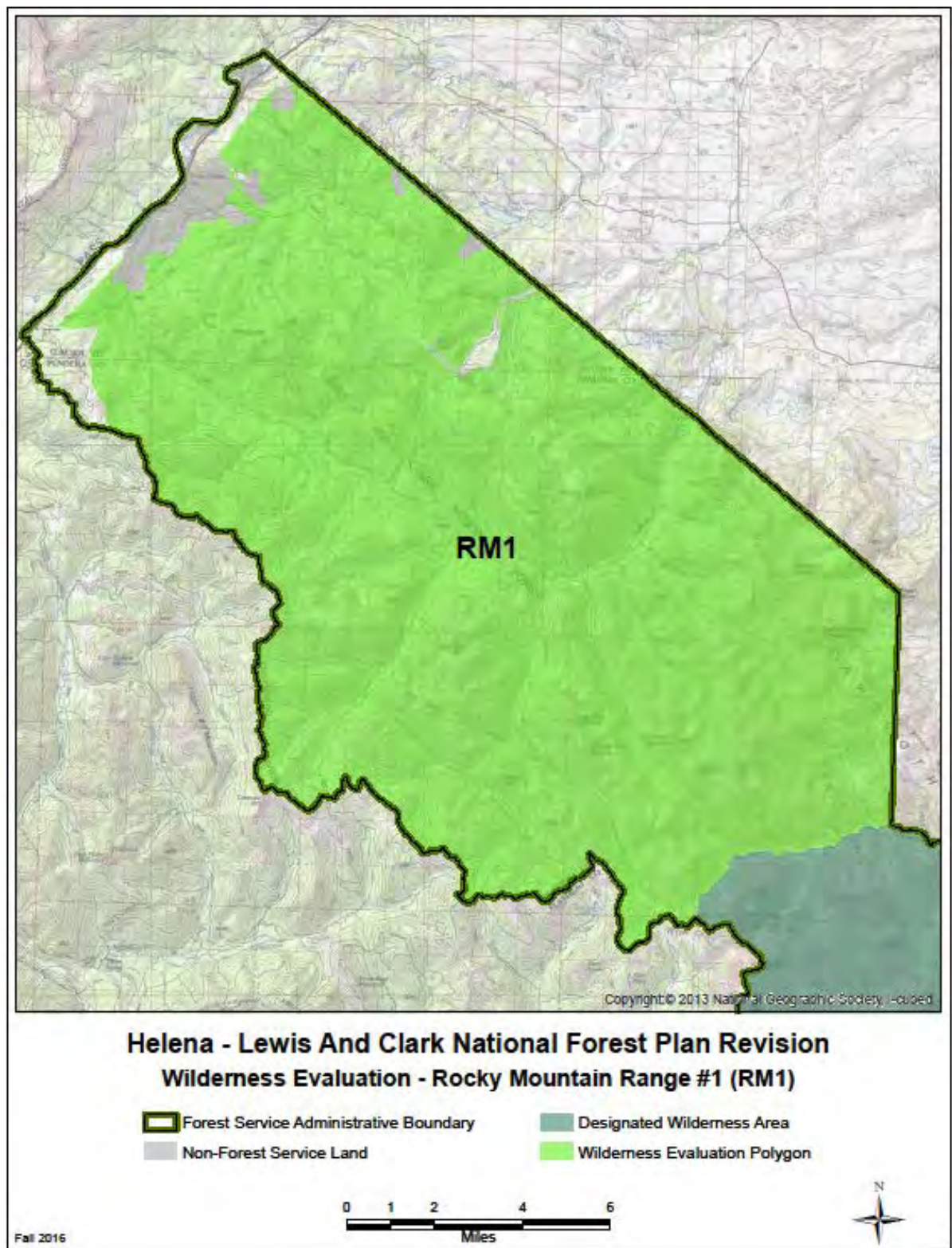
Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Polygonum douglasii</i> spp. <i>Austinae</i> , <i>Saussurea densa</i> , <i>Potentilla nivea</i> var. <i>pentaphylla</i> , <i>Physaria saximontana</i> far. <i>Dentate</i> , Northern wildrye, <i>Cypripedium passerinum</i> , <i>Antennaria pulvinata</i> , and <i>Allium fibrillum</i> .
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx (within designated Critical Habitat) Potential species of conservation concern and/or state at risk species: wolverine, harlequin duck, western toad, possibly transient fisher, possibly white-tailed ptarmigan. WCT populations, see above.
Rare ecosystems	A relatively long list of potential plant SCC's are found here. Whitebark pine is a candidate species for listing under the ESA and is found in trace amounts. WCT meta-population in Badger Creek and tributaries.
Outstanding landscape features	Waterfalls and river canyons on Badger Creek and Two Medicine River. Scenic river drainages in Two Medicine River, Badger, and North Fork Birch Creek (WSR). Really high subalpine and alpine mountains along the southern portion of the polygon. Unique place names such as Kill 'em Quick Creek and adopted native names for mountains in there.

Features	Description and scale
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value, especially the Badger-Two Medicine Traditional Cultural District.
Research Natural Areas	None present.
High quality water resources or important watershed features	High quality water throughout polygon, high quality fisheries habitat. North Badger Creek and 3 tributaries (Lee Creek, Red Poacher Creek and Badger Cabin Creeks) are included on the draft list of eligible WSRs for their outstanding WCT meta-population. SF Two Medicine NF and SF Badger, and NF Birch Creeks are all included on the draft list of eligible WSRs for their outstanding cultural values.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 275. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	The Badger Two Medicine is a large, well known landscape at the northern tip of the Rocky Mountain Ranger district. It borders the Bob Marshall Wilderness complex as well as the Blackfoot Reservation and is influenced by private lands and activity along the Highway 2 corridor along the northern boundary.
Legally established rights or uses within the area	The 1895 Agreement with Blackfeet Nation concerning the ceded strip which gives rights to value of ceremonial, spiritual and personal use. There are 4 oil and gas lease holders with 19 leases predominantly within the northwest half of the area.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Private land inholdings on the north end and along the reservation boundary.
Management of adjacent lands	Bob Marshall Wilderness Complex to the south and southwest on both the Flathead and the HLC NF. Flathead NF lands are non-wilderness to the west. Glacier Park to the northwest. Blackfeet Reservation land on the east and northeast.



## Teton Blackleaf Area (RM2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 276. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area include Douglas-fir dominated forests, which are found on 32% of the area, and subalpine fir and Engelmann spruce forests, which are found on 25%. Lodgepole pine forests are less common, covering about 5%, and grasslands can also be found on about 7%. A notably high proportion of this area is considered to be sparsely vegetated (20%), such as cliffy rocky areas. In addition, about 10% of the area is considered to be "transitional", meaning that the site is reforesting after a disturbance and doesn't have a vegetation type yet. These areas are associated with recent wildfire areas, primarily the Fool Creek fire. Small amounts of other dominance types are also present, generally making up about 1% or less of the area each: shrublands, whitebark pine, limber pine, cottonwood, and aspen.
Potential vegetation types	The most common potential vegetation types in this area are warm dry forest potential types and cool moist forest types (each found on about 33% of the area). Much of the remainder of the area is covered by sparsely vegetated areas (rock/scree often found above treeline and making up 20% of the area). Cold forest potential types are also found on about 6%, where whitebark pine would most likely be found, and dry grassland types represent nearly 5%. Riparian potential types are found on about 2%, where aspen and cottonwood are most likely to be found. Trace amounts of shrubland types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 601 acres within RM2 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 19,000 acres potential lynx habitat, with approximately 5300 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 9,000 acres of goshawk potential nesting habitat, at least 3 known nesting territories. Presence of Clark's nutcracker indicating mature whitebark and/or limber pine.</li> <li>• Big game: Approximately 40,000 acres secure elk habitat. 11,000 acres elk winter range part of which adjoins state-managed Blackleaf and Ear Mountain Wildlife Management Areas; and 7900 acres elk calving habitat. Moose present, adjoins key moose winter habitat in Pine Butte Swamp Preserve (owned by The Nature Conservancy). Up to about 35,000 acres mountain goat habitat including kidding areas; up to 13,000 acres bighorn sheep habitat including about 2200 acres lambing habitat.</li> <li>• Functioning subalpine/alpine habitat: Roughly 31,000 acres of potential wolverine habitat including 3900 acres potential maternal habitat.</li> <li>• Grizzly bears, wolves present.</li> </ul>

Plant and Animal Communities	Composition
	<ul style="list-style-type: none"> <li>• Harlequin ducks in most major streams.</li> <li>• Habitat for cliff-nesting raptors, including peregrine falcon, golden eagle, prairie falcon</li> <li>• WCT in NF and SF Dupuyer, NF, MF, SF Teton Creeks, Green Gulch, Rierdon Gulch, and Waldron, SF Waldron Creeks</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Likely non-native trout present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 277. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 96.6% of this area has been unaffected by previous harvest. Available records show that about 1,891 acres have been harvested from 1982 to 1999. The most common treatment was the creation of fuel breaks.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.9% of RM2 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 84%, Class 2: 9%, Class 3: 6%. Impacts from past fire to water quality, channel conditions
Miles of motorized road/trail within 300' of streams	13.08 miles
Noticeable wildfire suppression impacts	Fool Creek Fire (2007): hand lines rehabbed; little to no impacts evident on landscape due to use of existing roads/trails and terrain features.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 278. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None preset
Presence of timber harvest or prescribed fire areas	When considering both fire and prescribed fire, about 93% of this area has been unaffected by treatments. In addition to the 1,891 acres of harvest, primarily fuel break creation from 1997 to 1999, there have also been about 1,446 acres of pile burning from 1980 to 2010. Many of this pile burn areas overlap and are associated with the fuel break treatments; therefore, the actual footprint of affected area is less than indicated by these numbers. Further, aerial photography and District personnel expertise determined that none of these treatment areas are substantially noticeable today.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Electronic site visible on Mount Wright.
Areas of mining activities including both abandoned and active mines.	One abandoned mine within polygon



Improvement Type	Presence and extent of departure from naturalness
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data, there are no range improvements within RM2.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Teton Pass Ski Resort. West Fork, Cave Mountain, Mill Falls, and Elko CG. West Fork, Blackleaf, Cave Mountain, Rierdon, Jones creek, and South Fork Teton THs. Snowmobile parking lot on North Fork Teton Road. Dispersed camping along Blackleaf Canyon road, north fork Teton road, south fork Teton road and green gulch road. Outfitter end of road facility at West Fork Teton confluence with North Fork Teton. 7 Lazy P Guest ranch located on the Middle fork of the Teton river. Seven rec. residences along the North Fork Teton River.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Utilities up the Teton River to the Ski area. Power also to Cave Mountain and the 7 lazy P. Phone lines are buried in the shoulder.
Presence of watershed treatment areas including contouring, diking, and channeling.	Signs of dozer work for channeling of Middle Fork and North Fork Teton Rivers subsequent to the 1964 flood.
Lands adjacent to development or activities that impact opportunities for solitude.	None present.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 43 recorded cultural resources within this polygon, all represent relics of past occupation.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	1.8 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 16 recorded historic routes (103 miles) in this polygon.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 279. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	The North Fork Teton and South Fork Teton roads provide the only motorized access into this polygon.
Area available for winter motorized	Snowmobiles are permitted along the North Fork Teton, South Fork Teton and South Waldron river corridors. There is a small

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
opportunity	winter play area in the upper South Waldron Creek area.
Proximity to private lands and non-Forest Service roads.	None present.
Proximity to developed recreation sites outside of the polygon area.	Teton Pass Ski Resort. West Fork Campground, Cave Mountain, Mill Falls, and Elko CG. West Fork, Blackleaf, Cave Mountain, Rierdon, Jones creek, and South Fork Teton THs. Snowmobile parking lot on North Fork Teton Road. Dispersed camping along Blackleaf Canyon road, north fork Teton road, south fork Teton road and green gulch road. Outfitter end of road facility at West Fork Teton confluence with North Fork Teton. 7 Lazy P Guest ranch located on the Middle fork of the Teton river. Seven Rec Residences along the North Fork Teton River. West Fork Rental cabin which sits on the North Fork Teton River. Activities at these sites create sights and sounds that are visible within the polygon. The road system and activities along create noise but there is still lots of opportunity for solitude once away from these roads.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 280. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Except for the North Fork Teton and South Fork Teton roads, the entire polygon provides opportunities for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Except for the North Fork Teton, South Fork Teton and South Waldron areas, the entire polygon provides opportunities for primitive and semi-primitive non-motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, fishing, snowshoeing, cross country skiing, backcountry downhill skiing and snowboarding, technical rock climbing, snowmobiling, and outfitting.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 281. Size and Description**

Size of Polygon	Description
54,251 acres	The polygon is over 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 282. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus</i>

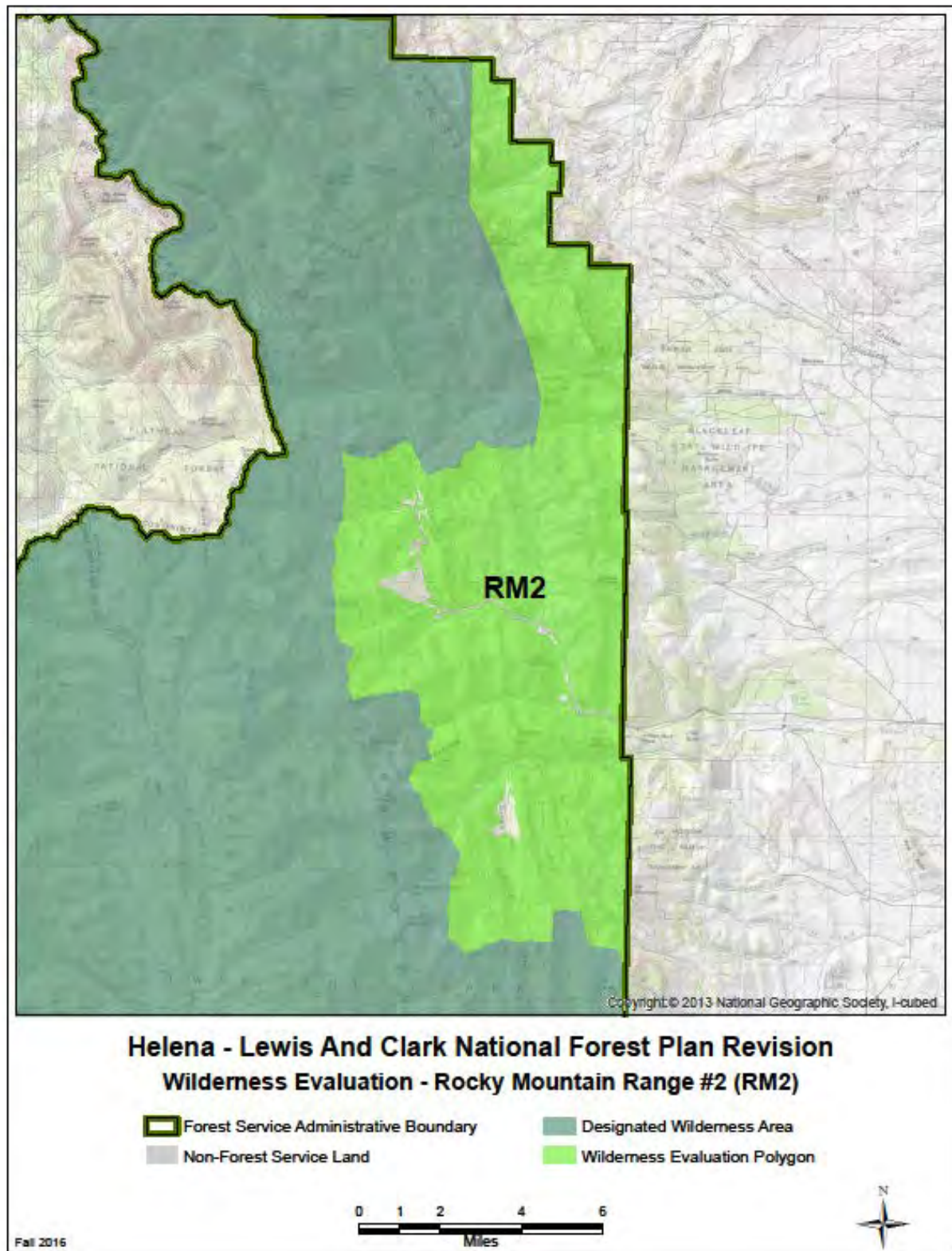


Features	Description and scale
	<i>flexilis</i> , <i>Ranunculus pedatifidus</i> , <i>Erigeron lackschewitzii</i> , <i>Physaria saximontana</i> var. <i>dentate</i> , <i>Oxytropis podocarpa</i> , <i>Saussurea densa</i> , <i>Botrychium</i> spp., and <i>Astragalus lackschewitzii</i> .
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx (within designated Critical Habitat) Potential species of conservation concern and/or state at risk species: wolverine, harlequin duck, pika, peregrine falcon (including nesting), western toad. WCT, see above.
Rare ecosystems	The most notable unique ecosystem in this area are the treeline and sparsely vegetated areas. Trace amounts of whitebark pine are present, which is a candidate species for listing under the ESA. Small amounts of other vegetation communities are of interest, including riparian areas. A fairly high number of potential plant species of conservation concern are found here. No rare aquatic ecosystems.
Outstanding landscape features	Walling Reef, cliff faces, canyons and waterfalls, Muddy Creek, mountain peaks.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None.
High quality water resources or important watershed features	High water quality outside of burned areas.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 283. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	An elongated polygon just east of the Bob Marshall Wilderness complex that includes lands around the North Fork Teton and South Fork Teton rivers.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Polygon resides within the Conservation Management Area
The presence and amount of non-Federal land in the area	None.
Management of adjacent lands	Wilderness to the north, south, and west of the polygon. Agriculture and grazing lands to the east. Blackleaf State Wildlife Management Area to the east of the polygon and a little south of Blackleaf canyon.



## Sun Canyon Willow Area (RM3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 284. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are Douglas-fir dominated forests, which cover about 51% of the area. Subalpine fir and Engelmann spruce mixed forests are also common, found on about 16%, and lodgepole pine forests cover about 9%. Sparsely vegetated areas (rock/scree) are found on about 11%, and grasslands cover nearly 8%. Small amounts of other dominance types, generally covering 1% or less of the area each, also occur, including shrublands, whitebark pine, limber pine, cottonwood, aspen, and a slight trace of ponderosa pine.
Potential vegetation types	The most common potential vegetation types in this area are in the cool moist forest group, covering about 42% of the area. Warm dry forest types are present on about 32%, and cold forest potential types (where whitebark pine is most likely to grow) are present on 5%. Xeric grassland and mesic grassland types each make up about 3%, and both shrublands and riparian types are represented in very small amounts. The remainder of the area is considered sparsely vegetated (11%), primarily consisting of cliffy areas or high peaks above treeline.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 1,205 acres within RM3 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 22,000 acres potential lynx habitat, with approximately 2700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 21,000 acres of goshawk potential nesting habitat, at least 10 known nesting territories. Presence of Clark's nutcracker indicating mature whitebark and/or limber pine.</li> <li>• Big game: Approximately 51,000 acres secure elk habitat. 23,000 acres elk winter range part of which adjoins state-managed Sun River Wildlife Management Area; and 9800 acres elk calving habitat. Moose may be present. Up to about 10,000 acres mountain goat habitat. Key area for nationally significant bighorn sheep population: over 27,000 acres bighorn sheep habitat including over 17,000 acres lambing habitat.</li> <li>• Functioning subalpine/alpine habitat: Roughly 27,000 acres of potential wolverine habitat including 6000 acres potential maternal habitat. Golden mantled ground squirrel also present.</li> <li>• Grizzly bears, wolves present.</li> <li>• Habitat for cliff-nesting raptors, including peregrine falcon, golden eagle, prairie falcon</li> <li>• WCT in Little Willow and NF Ford Creeks.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 285. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 94% of this area has been unaffected by past timber harvest. Records show that over 4,300 acres have been harvested, primarily consisting of fuel break treatments (3,717 acres total) that occurred in 1997 and 1999. The other harvests consisted of thinning, partial cuts, and clearcuts that occurred from 1982 to 1992.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.3% of RM3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 61%, Class 2: 39%
Miles of motorized road/trail within 300' of streams	10.4 miles
Noticeable wildfire suppression impacts	No fire suppression impacts evident on the landscape.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 286. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	In addition to the harvest treatments (about 4,300 acres) that have occurred, prescribed fire treatments have also been conducted in this area. The fire treatments consisted primarily of broadcast burning and underburning from 1990 to 2010, as well as pile burning from 1982 to 2011. In total, all vegetation treatment acres represent about 15% of the area, leaving 85% untouched. However, many of the prescribed fire areas overlap with past timber harvest areas, so the actual footprint of treatment is less. In addition, aerial photography and District personnel expertise determine that none of these treatments are substantially noticeable on the landscape.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Electronic site visible on Renshaw Mountain.
Areas of mining activities including both abandoned and active mines.	Patented mining claim Lange Creek.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are approximately 8 miles of fencing and 6 stock water tanks and 1632 acres of vegetation treatments within RM3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed sites associated with roads but none interior.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Both buried and above ground along Sun Canyon and Beaver Willow roads.
Presence of watershed treatment areas including contouring, diking, and channeling.	Gibson Dam and dozer channeling along the road but visible from within the polygon.
Lands adjacent to development or activities that impact opportunities for solitude.	None known.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Reclamation Flats Cabin – SUP with FWP. Ford Coulee Cabin at the head of Gibson Reservoir. Old Whites Cabin tract. There are 103 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.7 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 18 recorded historic routes (~110 miles) in this polygon. Most of these routes are trails.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 287. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	While most of the polygon is non-motorized, there is an open ATV route along the Beaver Willow Road.
Area available for winter motorized opportunity	There is some snowmobiling that occurs on the Benchmark road at the south end of and outside of the polygon. The rest of the polygon is not available for motorized winter recreation.
Proximity to private lands and non-Forest Service roads.	Lange Creek mining claim. K-L guest ranch at head of Gibson Reservoir, Mortimer Gulch Subdivision on Beaver Willow Road, Hidden Valley Ranch on Beaver Willow Road, Reissing Ranch on Willow Creek.
Proximity to developed recreation sites outside of the polygon area.	Multiple activities along the Sun Canyon, Beaver Willow and Benchmark roads that impact the polygon through sight and sound. Including Campgrounds, Trailheads, Outfitter facilities, resorts, administrative sites, and recreation residences.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 288. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	Except for areas near the open roads, the entire polygon is available for primitive and semi-primitive non-motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting and trapping, hiking, horseback riding, camping, recreation aviation, mountain biking, cross country skiing, snowshoeing, snowmobiling along the roads and uses by recreation residence and resorts in the area.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 289. Size and Description**

Size of Polygon	Description
67,328 acres	The polygon is over 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 290. Features present**

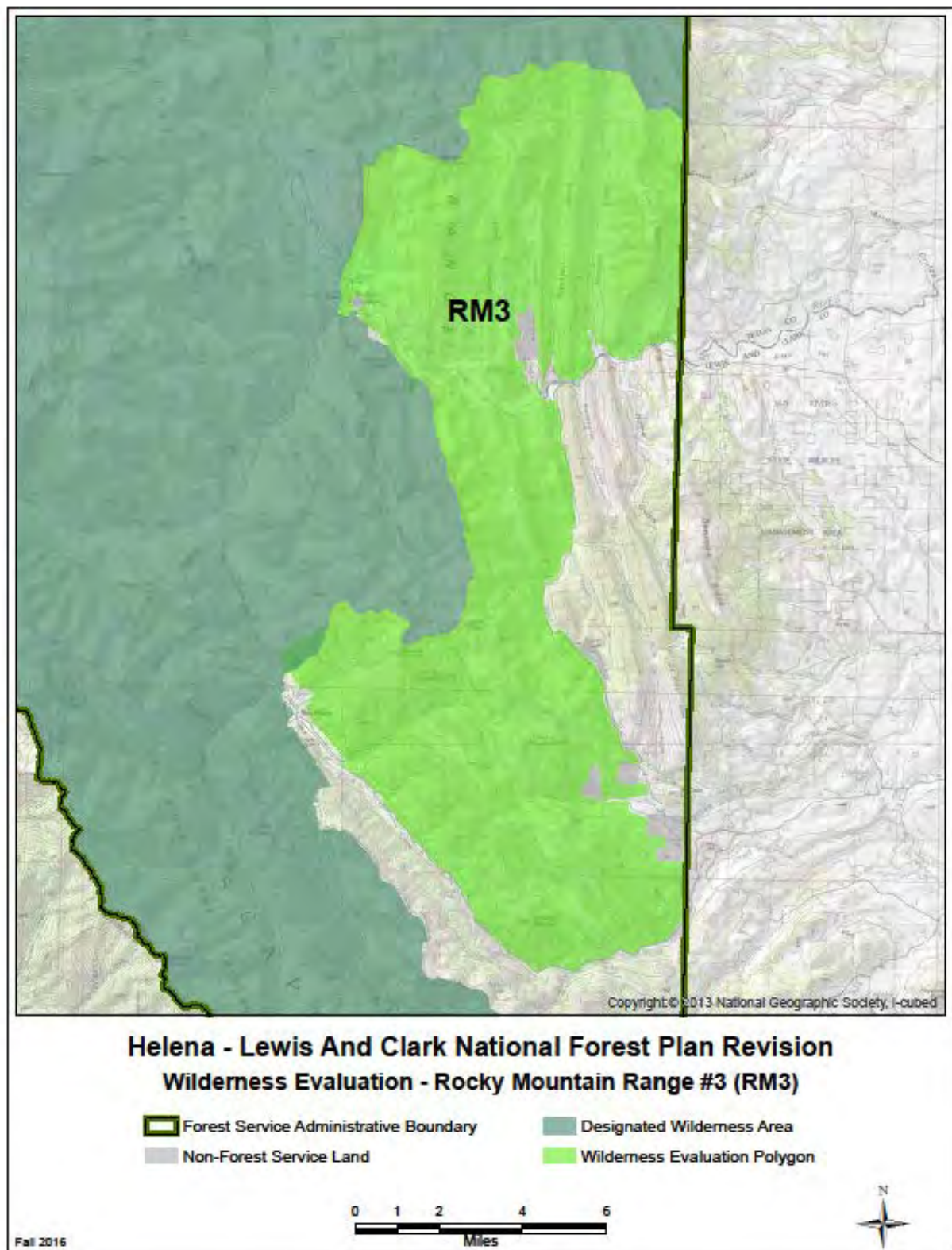
Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that occur here include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Antennaria pulvinata</i> , <i>Emerorchis rotundifolia</i> , <i>Cypripedium passerinum</i> , <i>Cypripedium parviflorum</i> , <i>Epipactis gigantea</i> , <i>Gentianopsis macounii</i> , <i>Botrychium spp.</i> , and <i>Polygonum douglasii ssp. Austinae</i>
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx (portion of area within designated Critical Habitat) Potential species of conservation concern and/or state at risk species: wolverine, western toad, harlequin duck. Two creeks with WCT present, see above.
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and is present in small amounts in this area. Many other potential plant species of conservation occur here as well. Trace amounts of ponderosa pine are present, which are very rare in this geographic area.
Outstanding landscape features	Sun Canyon, dramatic cliff facing,
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	Wagner Basin RNA
High quality water resources or important watershed features	Headwaters of Sun Creek very unique. High quality water throughout polygon.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 291. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	An elongated and irregular-shaped polygon adjacent to the Bob Marshall Wilderness Complex. This polygon includes undeveloped landscapes surrounding the Sun River and Benchmark area.
Legally established rights or uses within the area	Gibson Reservoir and dam managed by the Bureau of Reclamation.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	The polygon resides in a conservation management area.
The presence and amount of non-Federal land in the area	Private inholdings at Mortimer Gulch in Sun Canyon, K-L at head of Gibson Reservoir, along Willow Creek and Beaver Willow Road, and the Lange Creek mining claim.
Management of adjacent lands	Wilderness to the north and west. RM4 polygon to the east along with private lands mostly agriculture and grazing. Benchmark Road forms the southern boundary of the polygon.







## Sawtooth Ridge Area (RM4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 292. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The primary dominance types that occur in this area are Douglas-fir dominated forests, which cover about 77% of the area. Dry grasslands and sparsely vegetated areas (rock/scree) cover about 8% each. Lodgepole pine forests, as well as subalpine fir/Engelmann spruce forests, are each represented at about 3% each. Other dominance types are present only in trace amounts, covering less than 1% of the area each, and include shrublands, whitebark pine, limber pine, and aspen.
Potential vegetation types	The most common potential vegetation types are warm dry forest types, which make up about 58% of the area and likely support the bulk of the Douglas-fir forests. About 25% of the area has cool moist forest potential types, likely supporting mixed Douglas-fir, lodgepole pine, subalpine fir, and Engelmann spruce forests. Xeric and mesic grassland types each cover just over 3% each. Small amounts of cold forest, shrubland, and riparian types are also present. The remainder of the area is made up of sparsely vegetated areas (8%).
Known non-native terrestrial plant species	According to data as of 2/10/2016, 368 acres within RM4 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 4000 acres potential lynx habitat, with approximately 730 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 5000 acres of goshawk potential nesting habitat.</li> <li>• Big game: Approximately 1200 acres secure elk habitat. 6600 acres elk winter range part of which adjoins state-managed Sun River Wildlife Management Area; and 400 acres elk calving habitat. Moose may be present. Key area for nationally significant bighorn sheep population: over 8000 acres bighorn sheep habitat and over 6000 acres lambing habitat.</li> <li>• Functioning subalpine/alpine habitat: Roughly 3000 acres of potential wolverine.</li> <li>• Grizzly bears, wolves present.</li> <li>• Habitat for cliff-nesting raptors, including golden eagle, prairie falcon</li> </ul> <p>WCT in Little Willow Creek and Lime Gulch.</p>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native fish likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 293. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 99.5% of this area has been unaffected by timber harvest. Roughly 71 acres have been harvested, consisting of partial selection cutting (uneven-aged management) in 1989 and 1993.
% of area without known invasive weeds	According to data as of 2/10/2016, 97.6% of RM4 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 78%, Class 2: 22%
Miles of motorized road/trail within 300' of streams	15.4 miles
Noticeable wildfire suppression impacts	No fire occurrence records found since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 294. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	In addition to the 71 acres of past harvest, there have been prescribed fire treatments in this area totaling about 1,958 acres and consisting of underburns from 1993 to 1996, broadcast burning in 2009, and burning of piles from 1988 to 2011. In total, all of these treatment acres represent about 13% of the area. However, some of these treatments overlapped on the same area, so the actual footprint of treatment is less. In addition, a review of aerial photography and District personnel expertise confirmed that none of these treatments are substantially noticeable on the landscape.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None present.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are approximately 1.6 miles of fencing, 3 stock water tanks and 595 acres of vegetation treatments within RM4.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	None present.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Utility lines buried in the open road system in Sun Canyon and Beaver Willow.
Presence of watershed treatment areas including contouring, diking, and channeling.	Some diking along the Beaver Creek Road system. Not within the polygon.
Lands adjacent to development or activities that impact opportunities for solitude.	None present.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 28 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 8 recorded historic routes (~100 miles) in this polygon.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 295. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	While most of the polygon is non-motorized, there is an open ATV route along the Beaver Willow Road. This route lies outside of the polygon area but potentially impacts solitude within it.
Area available for winter motorized opportunity	None of the polygon is available for winter motorized recreation.
Proximity to private lands and non-Forest Service roads.	Stoner Place Subdivision along the Beaver Willow road.
Proximity to developed recreation sites outside of the polygon area.	Home Gulch Campground, Beaver Creek TH, Stoner Place TH, Lime Gulch TH,

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 296. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire area is available for primitive and semi-primitive non-motorized summer recreation.
Primitive and semi-primitive non-motorized winter recreation.	The entire area is available for primitive and semi-primitive non-motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, mountain biking, cross country skiing, open ATV route along the Beaver Willow Road.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 297. Size and Description**

Size of Polygon	Description
15, 423 acres	The polygon is over 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

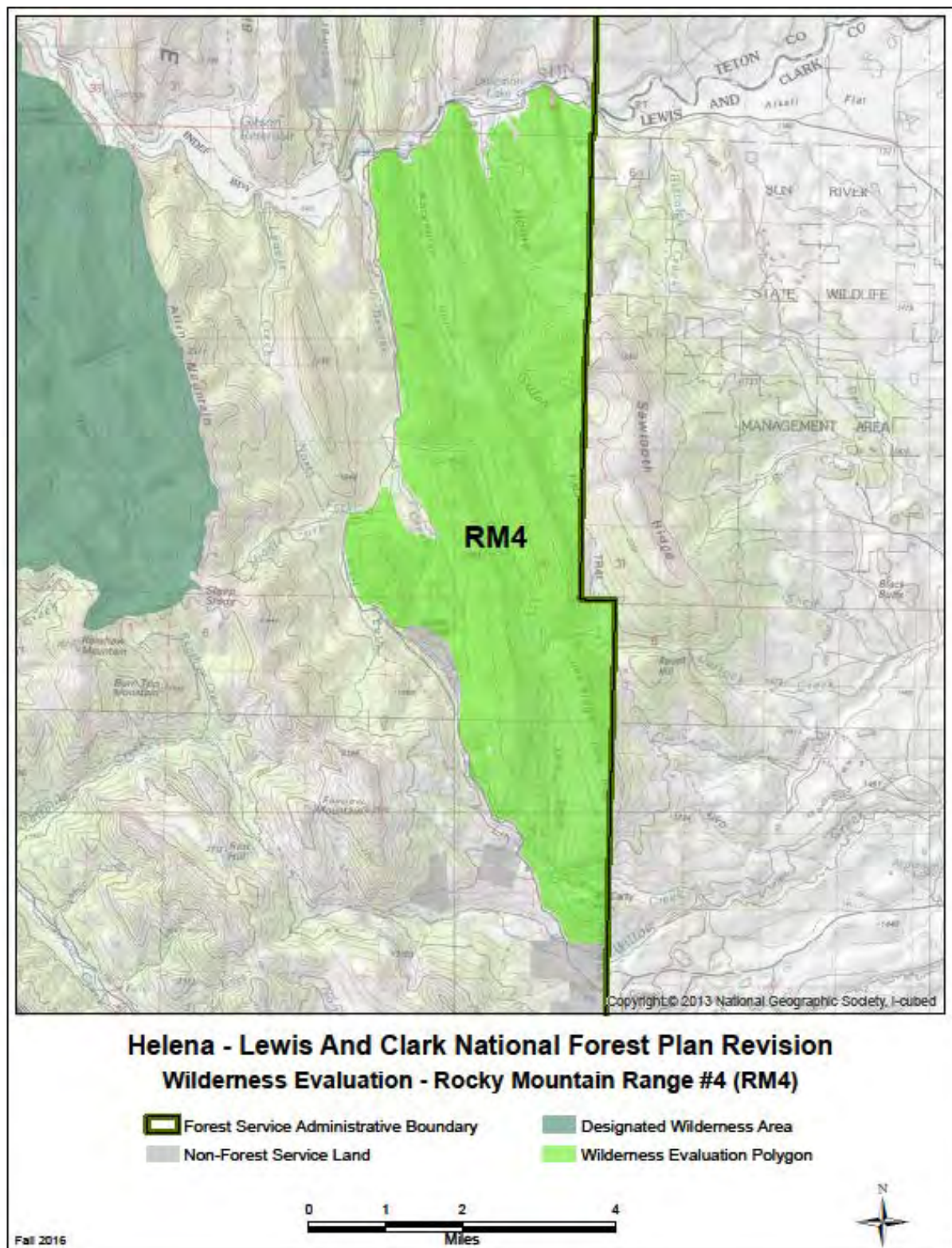
**Table 298. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , and <i>Amerorchis rotundifolia</i> .
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx ( portion of area within designated Critical Habitat) WCT in Little Willow and Lime Gulch.
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA and is present in small amounts in this area. Limber pine and aspen communities are also of interest, but present only in trace amounts. No rare aquatic ecosystems known.
Outstanding landscape features	Sawtooth Ridge, north-south running reefs, cliffs.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None, area is relatively dry.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 299. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	An elongated and irregular-shaped polygon that is located between the Beaver Willow Road to the west and private agricultural lands on the east.
Legally established rights or uses within the area	None present.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Stoner Place subdivision along Beaver Willow Road, piece of the Hidden Valley Ranch along Beaver Willow Road.
Management of adjacent lands	State Sun River Wildlife Management Area, BLM, and private agriculture and grazing.



## Elk Smith Area (RM5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 300. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are lodgepole pine dominated forests, which cover about 44% of the area. Douglas-fir forests are also common, growing on over 29%. Subalpine fir and Engelmann spruce mixed forests are found on 10%, and dry grasslands cover about 6%. Sparsely vegetated areas, likely rock/scree above treeline, are found on about 9%. Other dominance types are present only in trace amounts (covering 1% or less of the area), and include shrublands, whitebark pine, limber pine, cottonwood, and aspen. Although most of the area burned in the Canyon Creek fire of 1988, most of the area regenerated leaving only a trace area still considered to be transitional.
Potential vegetation types	Cool moist forest potential vegetation types are the most common in the area, representing about 54%. Warm dry forest potential types are also common, found on 29%. Xeric and mesic grassland types each make up about 3%, and riparian types are found on nearly 2%. Other types are present only in trace amounts, and include cold forest (where whitebark pine is most likely to grow) and shrubland types. The remainder of the area is sparsely vegetated (8%).
Known non-native terrestrial plant species	According to data as of 2/10/2016, 157 acres within RM5 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 16,000 acres potential lynx habitat, with approximately 2000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 5900 acres of goshawk potential nesting habitat, at least 6 known nesting territories.</li> <li>• Big game: Approximately 18,000 acres secure elk habitat. 1400 acres elk winter range; and 9000 acres elk calving habitat. Moose present. Approximately 1200 acres bighorn sheep winter habitat and 1400 acres lambing habitat.</li> <li>• Functioning subalpine/alpine habitat: Roughly 9600 acres of potential wolverine habitat including 2400 acres potential maternal habitat.</li> <li>• Well-developed bog/fen habitat in northwestern portion, with northern bog lemming documented.</li> <li>• Grizzly bears, wolves present.</li> <li>• Habitat for cliff-nesting raptors, including peregrine falcon, golden eagle, prairie falcon.</li> <li>• WCT populations in Moudess and Petty Creeks.</li> </ul>
Known non-native wildlife species	No non-native terrestrial wildlife species documented. Non-native trout likely.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 301. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 98.6% of the area has been unaffected by past harvest. Available records show that about 409 acres have had a past harvest, consisting primarily of commercial thins, salvage, and single tree selection cuts from 1981 to 1989.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.5% of RM5 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 49%, Class 2: 51% Impacts are all downstream of the polygon.
Miles of motorized road/trail within 300' of streams	11.8 miles
Noticeable wildfire suppression impacts	Canyon Creek (1988): Suppression lines rehabbed, but still evident along the northern fire perimeter boundary.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 302. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	Along Benchmark road which is excluded from the polygon.
Presence of timber harvest or prescribed fire areas	In addition to the past harvests that occurred in the 1980's and affected about 1.4% of the area, there were pile burning activities conducted on about 708 acres from 1984 to 1997, impacting an additional 2.4%. A total of 97.6% of the area was unaffected by treatments. In addition, the pile burning may have overlapped some of the past harvest areas. None of these treatments were determined to be substantially noticeable today.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Steamboat Mountain repeater.
Areas of mining activities including both abandoned and active mines.	Abandoned mine in Horse Mountain. Historic mining in Smith Creek.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1/10 <sup>th</sup> mile of fencing and 3 stock water tanks within RM5.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Dispersed camping along Benchmark and Elk Creek. End of the road outfitter camps but none within the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Utilities along and under parts of the Benchmark and the Elk Creek Roads.



Improvement Type	Presence and extent of departure from naturalness
Presence of watershed treatment areas including contouring, diking, and channeling.	Post 1964 streambed manipulation in Benchmark, and Wood Creek. Outside of polygon along main roads.
Lands adjacent to development or activities that impact opportunities for solitude.	Benchmark Airstrip along the Benchmark road.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 17 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	1.8 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 8 recorded historic routes (21 miles) in this polygon.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 303. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are motorcycle trails in the Petty Crown and Elk Creek/Bailey Basin areas.
Area available for winter motorized opportunity	None of the area is available for winter motorized recreation.
Proximity to private lands and non-Forest Service roads.	Private inholding in Elk Creek.
Proximity to developed recreation sites outside of the polygon area.	Campground, recreation residences, trailheads, livestock facilities, airstrip along the Benchmark road. There are minimal impacts out of the road corridor.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 304. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Primitive and semi-primitive non-motorized recreation in the summer away from Petty Crown and Elk Creek areas. There are impacts to solitude to areas that lie near the Benchmark road.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized recreation in the winter. Due to snowmobiling along the Benchmark road, there are impacts to solitude to areas

Measures	Descriptions and Locations
	that lie near the road.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, fishing, skiing, camping, recreation aviation, snowmobiling, and uses by recreation residence and resorts in the area.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 305. Size and Description**

Size of Polygon	Description
30,030 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

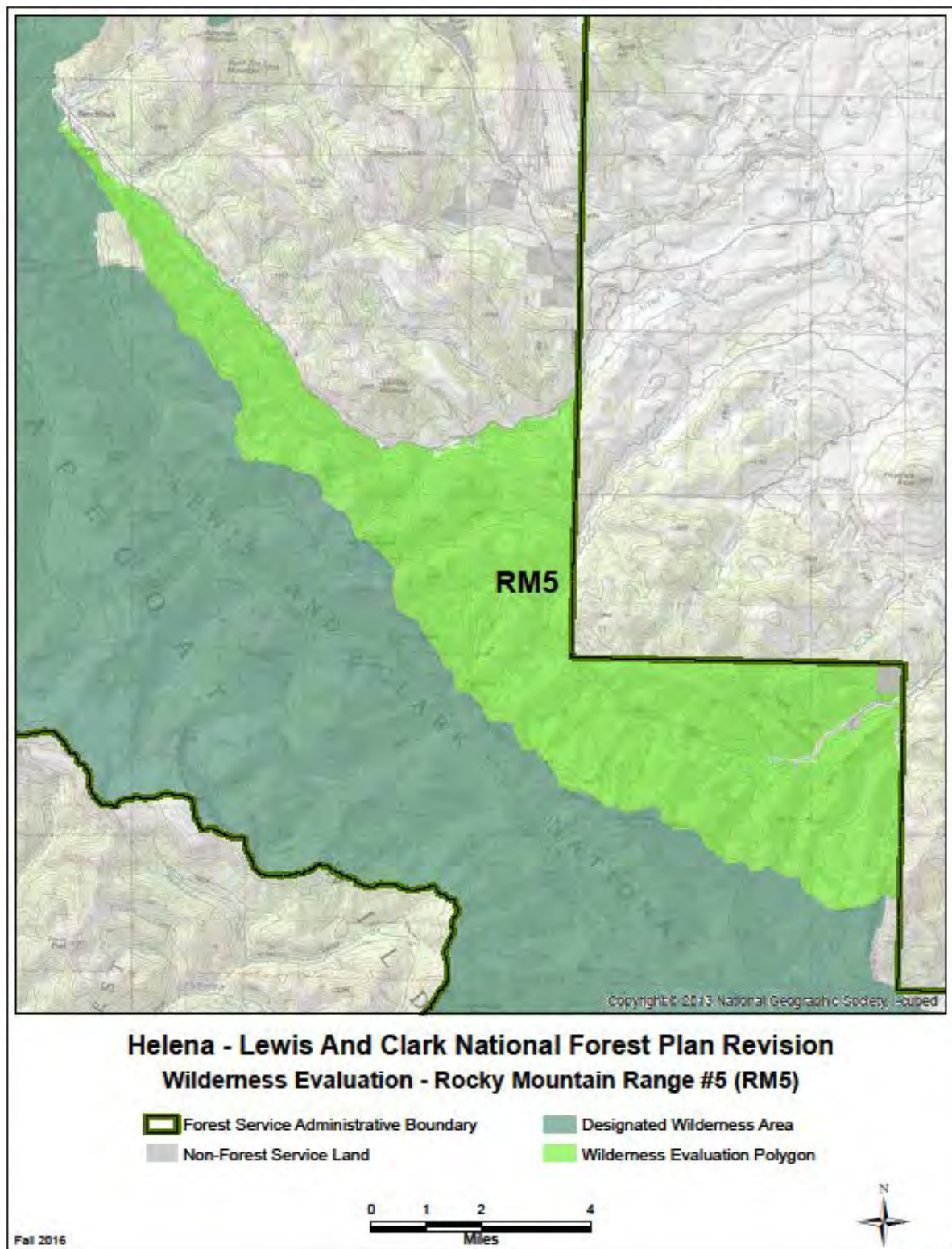
**Table 306. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Scorpidium scorpioides</i> , <i>Listera borealis</i> , <i>Platanthera obtusata</i> , <i>Cardamine rupicola</i> , and <i>Erigeron lackschewitzii</i> .
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx (most of area within designated Critical Habitat) Potential species of conservation concern and/or state at risk species: wolverine, western toad, harlequin duck, northern bog lemming WCT in Moudess and Petty Creeks.
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and is present in trace amounts in this area. Other potential plants of conservation concern occur here, and other vegetation communities of interest (limber pine and aspen) are present in very small amounts. Beaver complex in Elk Smith area.
Outstanding landscape features	Cliffs and reefs and waterfalls, Crown mountain and White Water Creek.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Beaver complex in Elk Smith area. Wood Creek on the draft list of eligible WSRs for outstanding wildlife habitat.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 307. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	An elongated polygon that is bordered by the Bob Marshall Wilderness Complex on the southwest, the Benchmark road on the north and private lands on the north and east.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Conservation management area.
The presence and amount of non-Federal land in the area	Private inholding in Elk Creek.
Management of adjacent lands	Wilderness to the south and west. Benchmark Road to the north, private lands to east (mostly ranch lands).



# Snowies Geographic Area

## Big Snowies Area (S1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

Question 1a. What is the composition of plant and animal communities within the area?

**Table 308. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The dominance types in this area gradate from Douglas-fir dominated forests (covering about 31% of the area), to lodgepole pine forest (22%), to subalpine fir and Engelmann spruce forests (29%). Sparsely vegetated areas (such as rock/scree) are found on about 8%, and dry grasslands cover 5%. Whitebark pine dominated forest is found on about 4%, at the highest elevations. Trace amounts of other dominance types, representing less than 1% of the area each, are also present, including shrublands, ponderosa pine, limber pine, cottonwood, and aspen.
Potential vegetation types	The common potential vegetation types are evenly split between warm dry forest potential types (40%) and cool moist forest types (42%). Cold forest potential vegetation types are present on about 3%, which is where whitebark pine is most likely to grow. Dry grassland types also make up about 5%. Trace amounts of shrublands and riparian types are also present. Sparsely vegetated areas (rock/scree) make up the remainder of the area.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 65 acres within S1 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 39,000 acres potential lynx habitat, with approximately 11,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type (note area is not currently occupied by lynx and is not contiguous with occupied lynx habitat). Roughly 34,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 1400 acres existing and roughly 50,000 acres potential old growth habitat based on habitat type and aerial photo interpretation; occurs in patches of varying size. Clark's nutcracker presence indicates mature whitebark, limber, and/or ponderosa pine communities.</li> <li>• Approximately 85,000 acres secure elk habitat. Roughly 2400 acres elk winter range and 7800 acres mule deer winter range contiguous with additional calving and winter habitat on adjacent non-NF land largely on south boundary. Moose may be present in riparian areas.</li> <li>• Functioning subalpine/alpine habitat: Approximately 31,000 acres potential wolverine habitat with roughly 3900 acres of potential maternal habitat.</li> <li>• WCT populations in WF Cottonwood, WF Cottonwood, Cottonwood, EF Big Spring, and Halfmoon Creeks</li> </ul>
Known non-native wildlife species	<p>Introduced population of mountain goats, which are native to Montana but not native to this mountain range.</p> <p>Non-native trout likely present.</p>

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 309. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	About 99.8% of this area is unaffected by past timber harvest. Available records indicate that about 205 acres have been harvested, including shelterwood cuts and overstory removals in the 1950's, and a small salvage cut in 1990. These treatments are located in the Timber Creek area.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.9% of S1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 82%, Class 2: 18%, some grazing impacts in polygon, NF Flatwillow Creek on 303(d) list.
Miles of motorized road/trail within 300' of streams	29.0 miles
Noticeable wildfire suppression impacts	Windy Point Fire (1994): hand line rehabbed; break in timber continuity (hard edges along west and south flanks of fire).

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 310. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	The 205 acres of past timber harvest affected about 0.2% of this area, and due to the age since treatment and/or type of treatment are no longer substantially noticeable on the landscape. Several more recent or notable harvests nearby are excluded from the evaluation boundary. The only prescribed fire treatments that have occurred in the boundary are 377 acres of pile burning, mostly occurring in 2004. A few of these acres (43) were done in 1991 on the same acres as the salvage harvest. Over 99.6% of the area is unaffected by vegetation treatments.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Radio communication site on West Peak which is very low profile and creating minimal effects.
Areas of mining activities including both abandoned and active mines.	A couple of abandoned mines in Swimming Woman Creek.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 0 miles of fencing and 20 stock water tanks within S1.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	No overnight outfitter and guide camps within the polygon. Some minor overnight use by hikers and permitted hiker outfitters adjacent to the trail system. Northwest portion of the polygon receives moderate hunting with permit.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Water pipeline for agricultural use for the Half Moon Ranch in Half Moon Creek.
Presence of watershed treatment areas including contouring, diking, and channeling.	Channeling associated with the water pipeline for Half Moon Ranch.
Lands adjacent to development or activities that impact opportunities for solitude.	Minimal ranchland, dude ranching, and outfitting developments.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 26 recorded cultural resources within this polygon, all represent relics of past occupations.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	2.1 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are 2 recorded historic routes (7 miles) in this polygon.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 311. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Southern ¼ of the polygon is open to motorized use on designated trails. Trails number 653 and 652 and FS roads 8954, 656, 823, 15878 and 270A. These roads and trails are located in Swimming Woman Creek, Careless Creek, East Fork Timber Creek, East Fork Blake Creek and motorized road (FSR 275 and 275A) into the Crystal Lake complex.
Area available for winter motorized opportunity	Over snow motorized recreation in the western portion of the polygon in West Gulch, Dry Pole, and up to West Peak. Also snowmobiling permitted in Black Ridge, Green Pole Canyon and East Fork up to Jump Off Peak. From Neil Creek to Swimming Woman along 652 and 653 trails. Winter motorized uses around Crystal Lake.
Proximity to private lands and non-Forest Service roads.	Polygon is primarily surrounded by private ranchlands. Also bordered by BLM on the southeastern side of the range.
Proximity to developed recreation sites outside of the polygon area.	Crystal Lake complex is heavily used during the summer months. Developed dispersed campground in Timber Creek. Trailheads at Neil Creek, Ulhorn and Cottonwood Creek.



Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 312. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Best opportunities for primitive and semi-primitive non-motorized recreation in the summer is the entire polygon north of Trails 652 and 653.
Primitive and semi-primitive non-motorized winter recreation.	The entire polygon is available for primitive and semi-primitive non-motorized recreation, except for those areas open to snowmobiles on the western portion of the polygon.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hiking, horseback riding, dispersed camping, back country skiing, fishing, mountain biking, caving, hunting, snowmobiling, ATV riding, and motorcycling.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 313. Size and Description**

Size of Polygon	Description
103,480 acres	The polygon is over 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 314. Features present**

Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Pinus flexilis</i> , <i>Cirsium longistylum</i> , <i>Goodyera repens</i> , <i>Dryas integrifolia</i> , and <i>Physaria saximontana</i> var. <i>dentate</i> .
Rare animal species or communities	Federally listed species: historic record of a Canada lynx, but area is not occupied and is isolated from occupied areas Potential species of conservation concern and/or state at risk species: dwarf shrew Several WCT populations, see above
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and is present in this area. <i>Goodyera repens</i> is particularly noted as occurring across this mountain range. Other vegetation communities of interest on the HLC NF are also present in very small amounts, including limber pine, ponderosa pine, and aspen. No rare aquatic ecosystems.
Outstanding landscape features	Big cirque basins in Careless Creek and Swimming Woman Creek. Ice Caves, big broad open ridge.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	Big Snowy – Greathouse Peak (1279 acres). Big Snowy – Old Baldy (1866 acres).

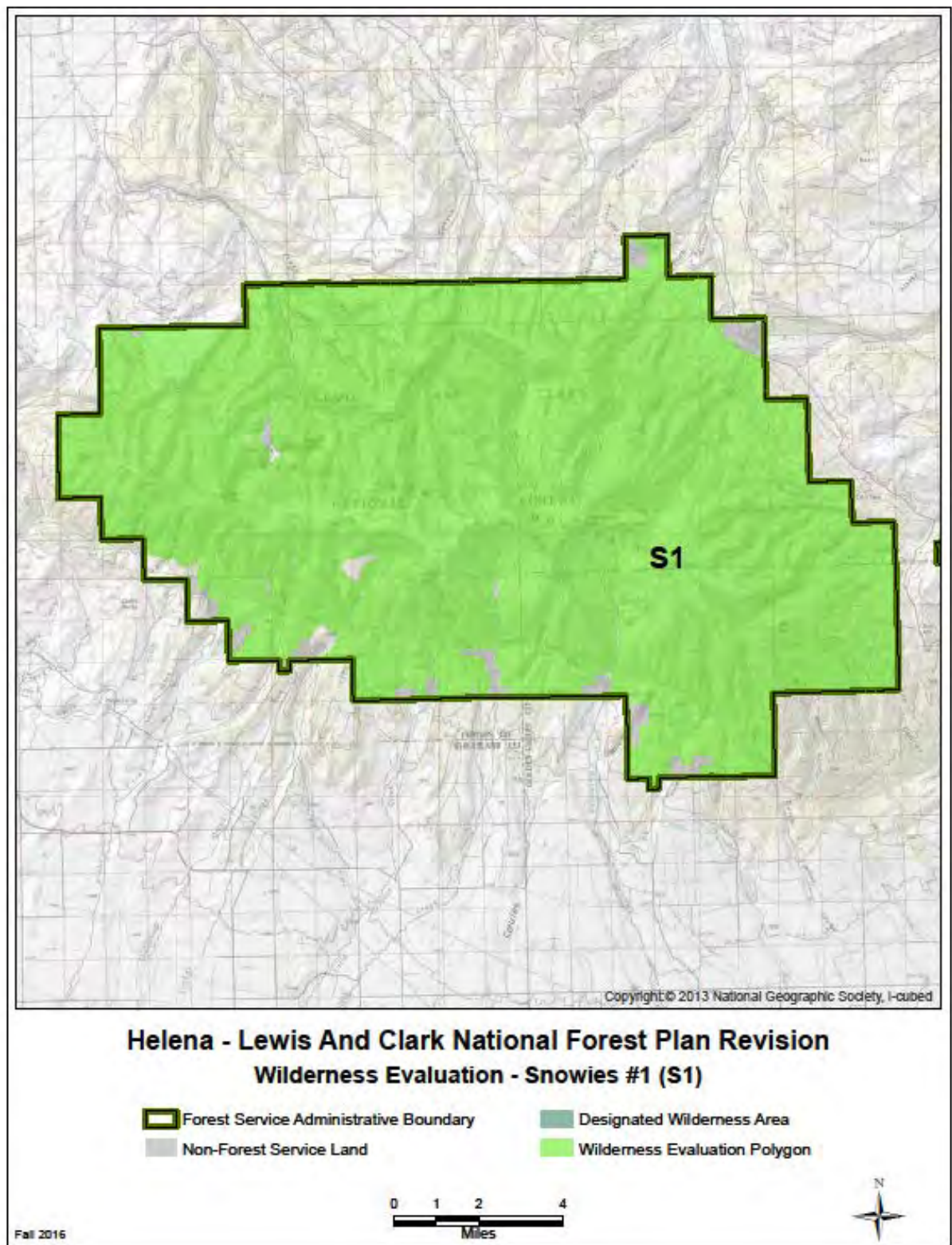


Features	Description and scale
High quality water resources or important watershed features	Swimming Woman Creek eligible for WSR listing for its outstanding geologic features. The stream also has high water quality. Big Spring is the municipal watershed for Lewistown.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 315. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	The major portion of the Big Snowy Mountain range.
Legally established rights or uses within the area	Water right in Half Moon Creek
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known. Much of this polygon has also been designated by Congress as the Big Snowies Wilderness Study Act area.
The presence and amount of non-Federal land in the area	Some minor private land adjacent to the polygon, scattered along the southern and northeastern boundaries.
Management of adjacent lands	Large component of large ranches and agriculture lands. Residential subdivision in Neil Creek. Trailheads on BLM and private in Uihorn, Cottonwood Creek. Half Moon Ranch, outfitting, and dude ranches.



## Upper Blackfoot Geographic Area

### Dearborn Silverking Area (UB1)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 316. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The area is commonly dominated by Douglas-fir and lodgepole pine dominance types, each making up roughly 30% of the overall composition (60% total). Mixes of Douglas-fir and lodgepole pine represent an additional 5%. Dry grasslands are fairly common, present on roughly 16% of the area. Subalpine fir mixes make up nearly 8%. Small amounts of other dominance types occur in small amounts (less than 2% each), including Engelmann spruce, whitebark pine, limber pine, cottonwood, aspen, and Rocky Mountain juniper. In addition, just over 7% of the area is considered "transitional", where recent disturbance has removed forest cover but regeneration is expected.
Potential vegetation types	The area contains a high proportion of cool moist forest potential vegetation types (44%), with warm dry forest types also common (37%). The xeric grassland and mesic grassland potential types each represent roughly 7%. The cold forest potential vegetation type, at high elevations where whitebark pine is most likely to thrive, is present on 1%. Small amounts of mesic shrublands, riparian/wetland, and sparse potential types are also present.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 527 acres UB1 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 18,000 acres potential lynx habitat, with approximately 4900 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 15,000 acres of goshawk potential nesting habitat; some known nesting territories. About 1900 acres low-moderate probability fisher habitat in south portion.</li> <li>• Big game: Approximately 41,000 acres secure elk habitat. 1300 acres elk winter range; and over 5000 acres elk calving habitat. Moose likely present.</li> <li>• Functioning subalpine/alpine habitat: Roughly 11,000 acres of potential wolverine habitat including 800 acres potential maternal habitat.</li> <li>• Grizzly bears, wolves present.</li> <li>• WCT populations present in Alice Creek and tributaries (including Toms, Wildcat, and Telephone Gulches and Bear Creek) as well as Landers Fork Creek, Falls Creek and Indian Meadows Creek. No mapped Bull Trout populations, but habitat is present, especially Landers Fork Creek.</li> </ul>
Known non-native wildlife species	European starlings and house sparrows documented but location unclear; likely at periphery near off-Forest dwellings. Non-native trout are likely to be present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 317. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	99.72% of this area has no record of past harvest in the FACTS database, although it is possible “historic” logging treatments occurred prior detailed record-keeping (generally the 1950’s). The small area with recorded harvest is roughly 124 acres, most of which occurred in the 1960’s although one unit was harvested in the 1990’s.
% of area without known invasive weeds	According to data as of 2/10/2016, 98.8% of UB1 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 57%, Class 2: 43%. Primary impacts in the Class 2 areas are non-native aquatic species, and road and trail effects.
Miles of motorized road/trail within 300’ of streams	Possibly 3.4 miles, but may be non-motorized.
Noticeable wildfire suppression impacts	Snow/Talon Fire (2003): dozer line & staging areas rehabbed but remain evident on landscape; breaks in timber continuity in Falls Creek and Indian Meadows Creek. Canyon Creek Fire (1988): suppression lines rehabbed, but still evident along the northern and southeastern fire perimeter boundary; hard vegetation edge.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 318. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas.	Substantially noticeable treatments were determined with a detailed methodology and excluded from the evaluation area. Some past treatments which are no longer considered noticeable occur in the evaluation area. The FACTS database shows roughly 4,999 acres of such treatments total (11% of the total UB1 area), 33 acres of timber harvest and 4,966 acres of prescribed fire. Some of the fire activities may overlap (i.e., a pile burn and a broadcast burn could occur on the same acre at different times) and therefore actual acres impacted could be slightly less. The harvest (salvage) was intermediate in nature (leaving residual trees) and occurred in the 1990’s; it has likely had sufficient time to be visually recovered from the treatment. The fire treatments have occurred since the 1980’s, but the most acres have been implemented after 2000 as part of the Alice Creek restoration project. Although not much time has passed since implementation (including burning of piles and broadcast burning), local specialists indicated that these areas are natural in appearance.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Repeater/electronic site on Silver King Mountain. This has a buffer of 150 feet diameter around it but will be visible from within UB1.

<b>Improvement Type</b>	<b>Presence and extent of departure from naturalness</b>
Areas of mining activities, including both abandoned and active mines.	No significant historic mining activity is known to occur in this area.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is five miles of fencing and two stock water tanks within UB1. Fences to exclude grazing in the aspen stands along the bottom of Alice Creek. These are temporary in nature and will be removed after aspen grows up.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Heavily used dispersed camp sites are located with 300 feet along Alice Creek Road. The Lewis and Clark pass trail is a very popular day hike.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines pipelines, and other permanently installed linear right-of-way structures.	None present.
Presence of watershed treatment areas including contouring, diking, and channeling.	None Known
Lands adjacent to development or activities that impact opportunities for solitude.	Alice Creek Ranch and Silver King Ranch are located along the southern border of UB1. There are also outfitter corrals and the Indian Meadows trailhead and guard station at the south west corner of UB1.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Several past occupational sites can be found within this area. These sites represent occupational use of this location which span thousands of years. No historic (complete or fully) standing structures are known to be present, however intact subsurface deposits are known to exist. Several interpretive signs exist in the area for the Alice Creek National Registered Historic District and the Lewis and Clark National Historic Trail.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plans.
Number of miles of maintenance level 1 road templates.	1.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes or other settlement era transportation.	There are two historic road segments in the south east portion of UB1, east of Alice Creek Road.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 319. Impacts influencing solitude**

<b>Impacts</b>	<b>Mitigating Factors (include topography and screening that influence pervasive sights and sounds)</b>
Area available for summer motorized opportunities	Alice Creek Road in the bottom of the drainage. It is a low speed road so intrusions are generally minimal. Cannot see or hear the road from the CDNST or popular hiking trails in the area. There are not motorized trails within the polygon.
Area available for winter motorized opportunities	Snowmobiles are allowed on Alice Creek road in the winter but its route is not heavily used by snowmobiles at this time. Other than Alice Creek road, cross country snowmobile use is prohibited in the remainder of the polygon.
Proximity to private lands and non-Forest Service roads.	Alice Creek Ranch and Silver King ranch at the southern border. Currently low intrusiveness of sights and sounds from these private ranches. Subdivision to the north in Falls Creek-Joslin area and big ranches to the east of the polygon.
Proximity to developed recreation sites outside of the polygon area.	Alice Creek Trailhead at the end of Alice Creek Road. Indian Meadows Trailhead, guard station, campground, and outfitter corrals at the southwestern edge.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 320. Primitive or unconfined types of recreation**

<b>Measures</b>	<b>Descriptions and Locations</b>
Primitive and semi-primitive non-motorized areas available for summer recreation	Except for the area immediately adjacent to the Alice Creek road, the entire polygon is available for primitive and semi-primitive summer recreation.
Primitive and semi-primitive non-motorized areas available for winter recreation	Except for the area immediately adjacent to the Alice Creek road, the entire polygon is available for primitive and semi-primitive winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, fishing, hiking, horseback riding, dispersed camping, snowshoeing, cross country skiing, and snowmobiling along Alice Creek road. Historic interpretation along the upper portions of Alice Creek, Landers Fork and in the Lewis and Clark pass area.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 321. Size and Description**

<b>Size of Polygon</b>	<b>Description</b>
44,140 acres	The polygon is over 5,000 acres in size and lies adjacent to the Scapegoat Wilderness area.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 322. Features present**

Features	Description and scale
Rare plant communities	Records indicate that the following potential species of conservation concern are present in this area: <i>Pinus albicaulis</i> ; <i>Pinus flexilis</i> ; <i>Erigeron flagellaris</i> ; <i>Amerorchis rotundifolia</i> ; <i>Lesquerella klausii</i> ; <i>Phlox kelseyii</i> var. <i>Missoulensis</i> ; <i>Draba densifolia</i> ; <i>Botrychium</i> spp.; <i>Tetraplodon mnioides</i> ; <i>Drosera linearis</i> ; <i>Drosera anglica</i> ; <i>Carex livida</i> ; <i>Schoenoplectus subterminalis</i> .
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx (within designated Critical Habitat) Potential species of conservation concern and/or state at risk species: western toad, fisher (likely transient), trumpeter swan Fisheries: WCT in Alice Creek, Landers fork and Tom's Gulch.
Rare ecosystems	Whitebark pine communities are of interest due to the species' status as a candidate for listing under the ESA. A small proportion of this area has whitebark pine present and potential (roughly 1%). Several notable locations occur which a mix of whitebark pine and limber pine, which have been the focus of some prescribed fire restoration treatments.
Outstanding landscape features	Limestone reef caves in upper Alice Creek. Blowout Mountain and Flattop. Falls creek has many waterfalls.
Historic and cultural resource sites	Thirteen known historic and cultural resources sites are located within this evaluation area. One of these sites is the Alice Creek Historic District which is listed in the National Register of Historic places and contains numerous sites which can be associated with this historic travel corridor. In addition, the Lewis and Clark National Historic Trail passes through this area. Overall, this location has high potential for the presences of historic and cultural resource sites, as well as scientific and educational value in regards to cultural resources.
Research Natural Areas	Indian Meadows RNA.
High quality water resources or important watershed features	Alice and Landers Fork Creeks are included in the draft WSR eligibility study. Landers Fork is listed for outstanding bull trout habitat and Alice Creek is listed for outstanding cultural resources.

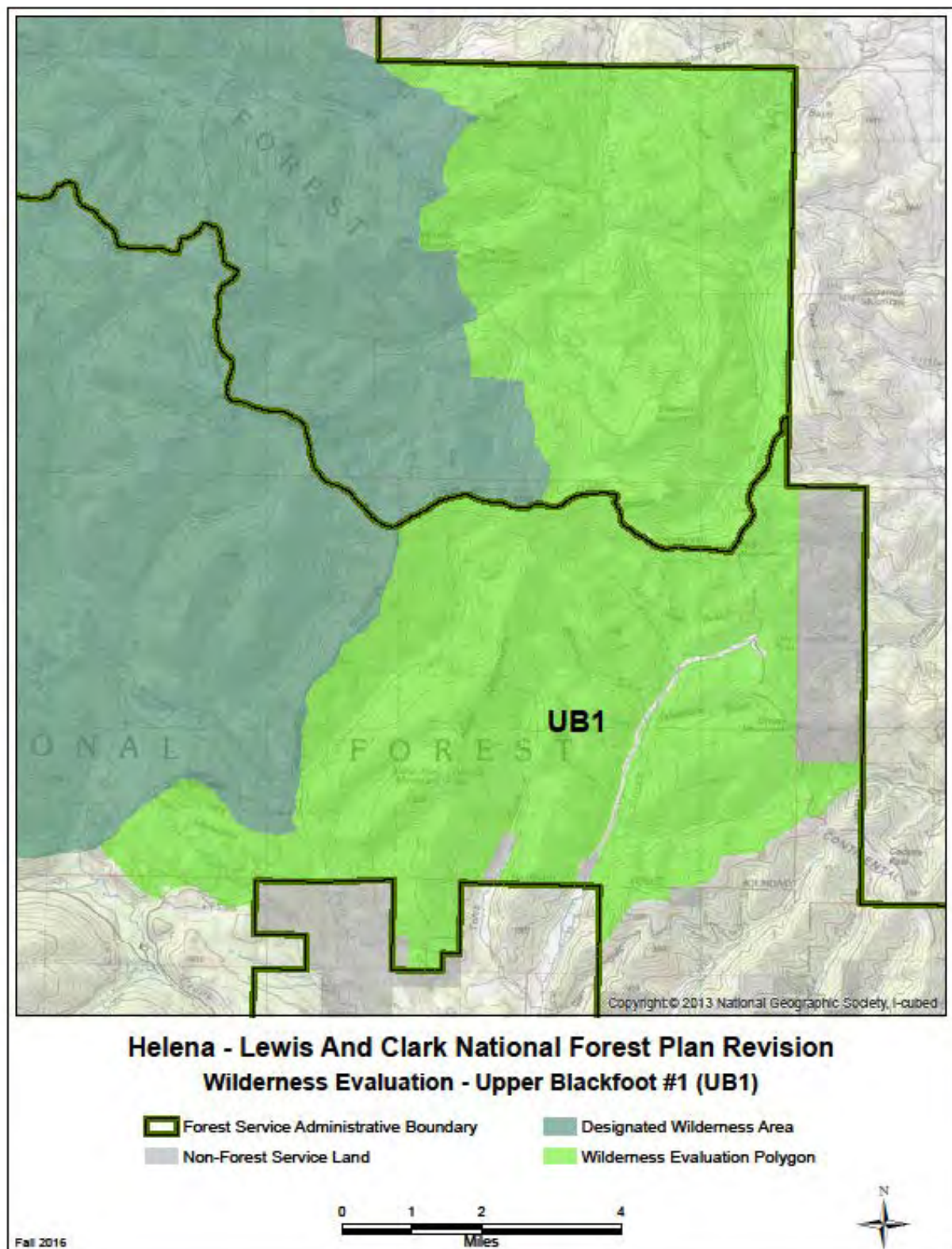
Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 323. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	A large irregular shaped polygon that wraps around the southeastern corner of the Scapegoat wilderness. The northern half of the polygon is located within the Rocky Mountain GA and the southern half is located within the Upper Blackfoot GA.
Legally established rights or uses within the area	None known.

<b>Factors</b>	<b>Description and scale</b>
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	Conservation management area in the Rocky Mountain Ranger District.
The presence and amount of non-Federal land in the area	All non-Federal lands were excluded from the inventory and evaluation. No private inholdings.
Management of adjacent lands	Logging and ranching on both private and state ownership in areas south of the polygon. Agriculture and grazing to the east. Residential subdivision to the north. Wilderness to the west.





## Stonewall Area (UB2)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 324. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	This area is characterized by productive conifer forest. Subalpine fir and subalpine fir/spruce mixes are the most common, found on roughly 23% of the area. Douglas-fir and lodgepole pine forests are also common, each dominating up about 22% of the area. A small amount of whitebark pine dominance types are also found (nearly 3%). Trace amounts of other dominance types can be found at less than 1% (ponderosa pine and limber pine). Notably, nearly 20% of this area is considered "transitional" as a result of recent fires; these areas are currently non-forested but generally expected to regenerate to forests.
Potential vegetation types	Cool moist forested potential vegetation types dominate this area (47%), with warm dry forest potential types also common (28%). This area also has a relatively high proportion of cold forest potential types (16%), where species such as whitebark pine may thrive. Roughly 6% of the area is only sparsely vegetated, especially on high elevation, rocky sites. Very small amounts of non-forested potential types are present, representing roughly 3% total, with mesic and xeric grasslands the most common types.
Known non-native terrestrial plant species	According to data as of 2/10/2016 70 acres within UB2 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 21,000 acres potential lynx habitat, with approximately 7100 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 10,000 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 1800 acres possible old growth habitat in patches of varying size. About 700 acres low-moderate probability fisher habitat.</li> <li>• Approximately 18,000 acres secure elk habitat. Moose present.</li> <li>• Functioning subalpine/alpine habitat: approximately 24,000 acres potential wolverine habitat with roughly 16,000 acres of potential maternal habitat.</li> <li>• Grizzly bears, Canada lynx, wolves present.</li> <li>• WCT populations in Copper, Snowbank, Liverpool, Stonewall, NF Arrastra and Dry Creeks and Bull Trout also present in Copper Creek.</li> </ul>
Known non-native wildlife species	No non-native terrestrial or avian species known, non-native trout likely present.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 325. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	99.61% of this area has not been impacted by past timber harvest found in the FACTS database. It is possible “historic” logging occurred in some accessible areas prior to detailed record keeping (generally the 1950’s). The database shows roughly 116 acres have been harvested, mostly in the 1990’s.
% of area without known invasive weeds	According to data as of 2/10/2016, 99.8% of UB2 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 7%, Class 2: 93% Arrastra Creek on 303(d) list for streambank modification, road runoff
Miles of motorized road/trail within 300’ of streams	5.5 miles
Noticeable wildfire suppression impacts	<i>Snow/Talon Fire (2003)</i> : dozer line and staging areas rehabbed but still evident in Falls Creek and Indian Meadows Creek. <i>Keep Cool Fire (2006)</i> : dozer lines rehabbed but still evident in headwaters of Liverpool Creek. <i>Sucker Creek Fire (2015)</i> : dozer lines rehabbed but still evident in Sucker Creek.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 326. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	Substantially noticeable treatments were determined with a detailed methodology and excluded from the evaluation area. Some past treatments which are no longer considered noticeable occur in the evaluation area. The FACTS database shows roughly 258 acres of such treatments total (less than 1% of the total UB2 area), 116 timber harvest and 142 acres prescribed fire. The harvest was intermediate or uneven-aged in nature, leaving ample residual trees, and occurred in the 1990’s; therefore, these areas are likely visually recovered from the treatment. The burning treatments, which included broadcast burning, burning piles, and underburning, primarily also occurred in the 1990’s and in some cases overlap the same acres that were harvested. Treated areas are primarily confined to the eastern boundary of the evaluation area, near existing roads.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Electronic site on Stonewall Mountain. This is accessed by an ATV trail. Homeland Security repeater site.

Improvement Type	Presence and extent of departure from naturalness
Areas of mining activities including both abandoned and active mines.	Upper cotter Creek has a significant road network around the mine. Is substantially noticeable. Stonewall Creek patented mining claim with access road is also substantially noticeable. This evaluation area lies within the Lincoln Historic Mining District which contains numerous mining related features. Most of the historic mining is centralized around drainage bottoms and stream channels.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are no range improvements located within UB2.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	ATV trail to Stonewall Mountain creates a cherry stem into the center part of UB2. Copper Bowls very popular snowmobiling area. Snowbank Lake Picnic Area and Copper Creek Campground just north of UB2. Arrastra Creek TH is located to the southwest portion of UB2 along Beaver Creek road. Administrative Lookout on Stonewall Mountain.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	Underground powerline along ATV trail to Stonewall Mountain.
Presence of watershed treatment areas including contouring, diking, and channeling.	There is some older diversion ditches for past mining activity along Stonewall Creek. These are currently being reclaimed.
Lands adjacent to development or activities that impact opportunities for solitude.	Beaver Creek and Copper Creek roads are open year round to motorized uses. Stonewall Creek patented mining claim and access road affects surrounding area.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Stonewall Lookout. It is safe to assume there are several undocumented relics of historic mining related to the Lincoln Historic Mining District landscape. At this time there is only one recorded cultural resource in this evaluation area.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	2.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	There are several undocumented road templates associated with historic mining in this location, due to the fact that is it located with a historic mining district.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 327. Impacts influencing solitude**

<b>Impacts</b>	<b>Mitigating Factors (include topography and screening that influence pervasive sights and sounds)</b>
Area available for summer motorized opportunity	There are three motorized routes within the polygon. These are located on Stonewall Mountain. The rest of the area is not available for summer motorized uses.
Area available for winter motorized opportunity	Except for the Red Mountain RNA and the top of Stonewall Mountain and ridgeline, this majority of the polygon is open to cross country snowmobile use. Additionally, there are a number of designated snowmobile trails in the area and a snowmobile play area in the upper reaches of Copper Creek.
Proximity to private lands and non-Forest Service roads.	Patented Mining claim in Stonewall Creek. Open access road to this land.
Proximity to developed recreation sites outside of the polygon area.	Arrastra Creek Trailhead along Beaver Creek, Copper Creek CG, Snowbank Lake Picnic Area, Stonewall Mountain TH, Sucker Creek TH.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 328. Primitive or unconfined types of recreation**

<b>Measures</b>	<b>Descriptions and Locations</b>
Primitive and semi-primitive non-motorized areas available for summer recreation.	Portions of the polygon adjacent to the Scapegoat Wilderness and the eastern portions of the polygon are available for primitive and semi-primitive non-motorized recreation in the summer.
Primitive and semi-primitive non-motorized areas available for winter recreation.	Much of the area is available for cross country snowmobile use. The Red Mountain RNA and areas across the Stonewall Mountain ridge would have some opportunity for primitive and semi-primitive non-motorized recreation in winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, fishing, hiking, horseback riding, ATV riding, mountain biking, motorcycle riding, snowmobiling, and dispersed camping.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 329. Size and Description**

<b>Size of Polygon</b>	<b>Description</b>
30,046 acres	The polygon is over 5,000 acres in size and lies adjacent to the Scapegoat Wilderness area.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 330. Features present**

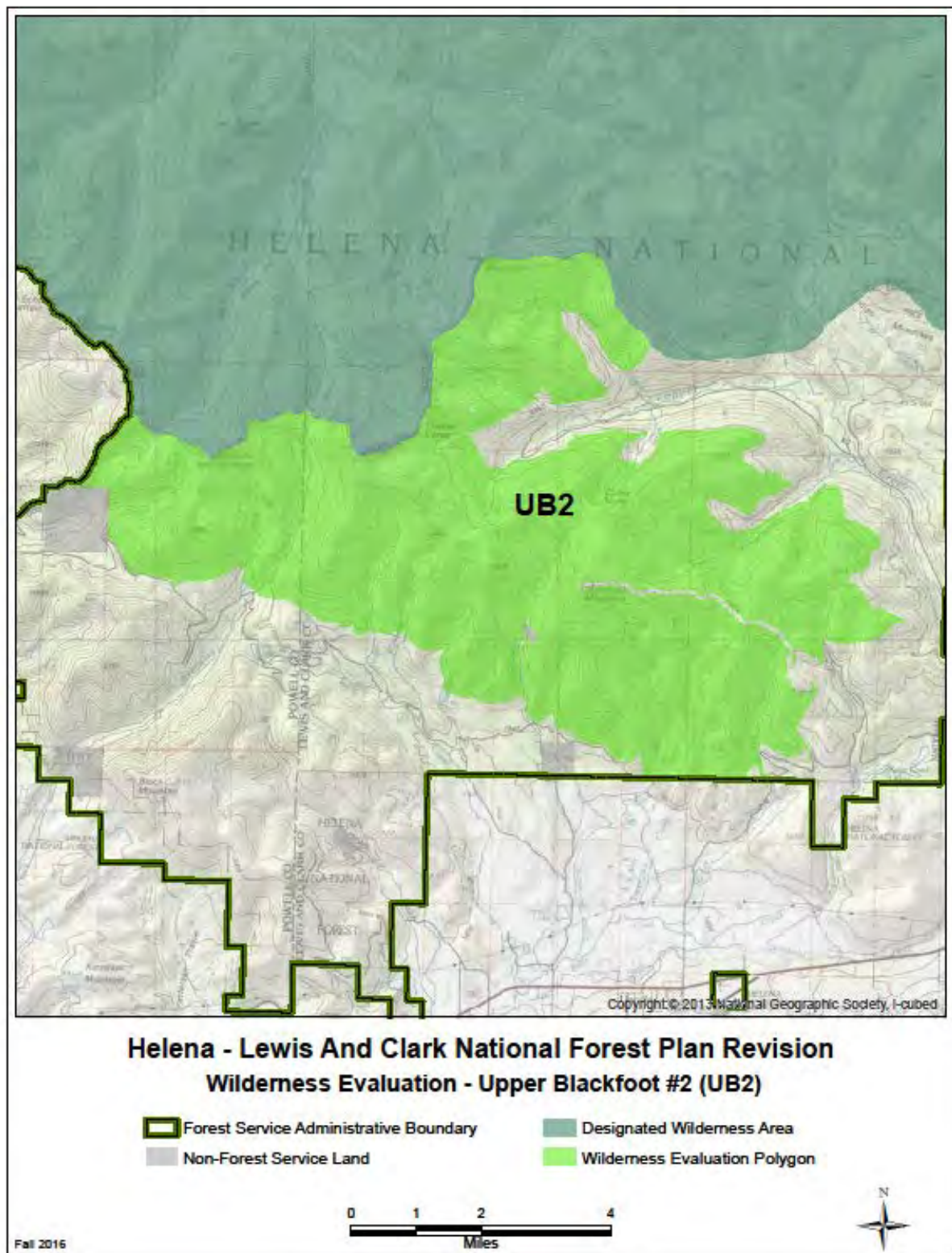
Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern that are known to occur in this area are <i>Pinus albicaulis</i> and <i>Cardamine rupicola</i> . It's possible that <i>Pinus flexilis</i> could also occur.
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx (within designated Critical Habitat) Potential species of conservation concern and/or state at risk species: fisher (likely transient) WCT in Stonewall Creek, Dry Creek, NF Arrastra Creek, Park Creek, and Liverpool Creek; Bull Trout in Copper Creek and Snowbank Creek.
Rare ecosystems	Whitebark pine communities are of interest due to the species' status as a candidate for listing under the ESA. A small proportion of this area has whitebark pine present (3%) and potential (roughly 16% in the cold types). Fires in suitable sites may offer potential for whitebark pine regeneration. Snowbank Creek has the highest density of Bull trout spawning on the Forest.
Outstanding landscape features	Copper Lakes in upper Copper Creek.
Historic and cultural resource sites	Besides the Lincoln Historic Mining District, only one recorded cultural resource lies within this evaluation area. However, several sites lie just outside of the proposed boundary.
Research Natural Areas	Red Mountain RNA.
High quality water resources or important watershed features	WCT streams, bull trout fisheries, Snowbank and Copper Creek are included on the draft list of eligible WSR streams for fisheries ORV.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 331. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	The large irregular-shaped polygon lies immediately south of the Scapegoat Wilderness and includes Stonewall Mountain and the upper reaches of Copper Creek.
Legally established rights or uses within the area	ROW along Stonewall Mountain Tail for powerline, and Department of Homeland Security repeater site.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Stonewall Creek patented mining claim.
Management of adjacent lands	Wilderness to the north. State land managed for timber production to the south. Mix of timber harvested areas (FS), nature conservancy, state land, and private ownership to the east.





## Black Mountain Area (UB3)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 332. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	This area is dominated by conifer forest. Douglas-fir dominance types are the most common, present on 52% of the area. Lodgepole pine dominance types are also common, growing on roughly 28% of the area. Subalpine-fir and Engelmann spruce mixes grow on about 16%. Trace amounts of other forest types are present, including whitebark pine and cottonwood. Nearly 3% of the area is considered "transitional", where disturbance events (fire) have caused mortality and the forest has not yet regenerated. Less than 1% of the area is made up of grass or shrublands.
Potential vegetation types	Cool moist forest potential vegetation types dominate the area, and are estimated to cover over 73%. Warm dry forest potential types are mapped on about 25%. Less than 1% of the area is mapped as cold forest potential types, where whitebark is most likely to thrive. Trace amounts are non-forested potential vegetation types, primarily grasslands.
Known non-native terrestrial plant species	According to data as of 2/10/2016 448 acres within UB3 is associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 7700 acres potential lynx habitat, with approximately 3700 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 7200 acres of goshawk potential nesting habitat, with some known nest territories. Approximately 2200 acres possible old growth habitat in patches of varying size. Clark's nutcracker presence indicates mature whitebark, limber, and/or ponderosa pine communities.</li> <li>• Approximately 8900 acres secure elk habitat. Moose present.</li> <li>• Functioning subalpine/alpine habitat: Approximately 5200 acres potential wolverine habitat with roughly 1100 acres of potential maternal habitat.</li> <li>• Grizzly bears, Canada lynx, wolves present.</li> <li>• Fisheries: WCT and Bull Trout in Arrastra Creek.</li> </ul>
Known non-native wildlife species	No non-native terrestrial or avian species known. Non-native fish are likely to be present.



*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 333. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	99.99% of the area has no records of past timber harvest in the FACTS database, although it is possible that “historic” logging (prior to the 1950’s) may have occurred before detailed records were kept. Only 0.77 acres in this area have been affected by harvest (salvage in 1979).
% of area without known invasive weeds	According to data as of 2/10/2016 95.6% of UB3 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 3%, Class 2: 97% Arrastra and Ward Creeks on 303(d) list for streambank modification, road runoff
Miles of motorized road/trail within 300’ of streams	1.3 miles
Noticeable wildfire suppression impacts	No fire suppression impacts evident on landscape.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 334. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	Substantially noticeable treatments were determined with a detailed methodology and excluded from the evaluation area. Some past treatments which are no longer considered noticeable occur in the evaluation area. The FACTS database shows roughly 96 acres of such treatments total (roughly 1% of the total UB3 area), 0.77 acres timber harvest and 96 acres prescribed fire. The harvest was an intermediate salvage, leaving ample residual trees, and occurred in 1979; therefore, this area is likely visually recovered from the treatment. There was a local account of a clearcut and roads in the SE portion of the area. A review of aerial imagery confirms the presence of an obviously cleared area with a switchback road that appears to either pre-date FACTS records, or be a result of land acquisition, and is roughly 50 acres in size. The burning treatments, which included broadcast burning and underburning, occurred in the 1960’s and in the 1990’s.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	Building on Black Mtn., possibly used for communications site.
Areas of mining activities including both abandoned and active mines.	No mining within UB3. However, there is some mining to the east in Lincoln Gulch. Small portions of the historic Lincoln Ditch Complex run through this evaluation area.

Improvement Type	Presence and extent of departure from naturalness
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are no range improvements within UB3.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Arrastra Creek TH to the north along Beaver Creek. Pine Grove CG to the east in Beaver Creek. Area identified for mountain bike trail in TP. Cross country snowmobile use is allowed across all of UB3.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None known.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.
Lands adjacent to development or activities that impact opportunities for solitude.	Beaver Creek and Lone Point road are open to motorized use year round. Lands adjacent to UB3 have active timber harvest and mining claims.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	No recorded structures or dwelling, only a small portion of the historic Lincoln Ditch Complex runs through this area. This area has not received very much cultural resource inventories, therefore there is potential for unrecorded relics of the past.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.2 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	None known. No historic road template recorded, however there is the potential for unrecorded features.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 335. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are no motorized trails within the polygon.
Area available for winter motorized opportunity	The entire polygon is available for cross country snowmobile use.
Proximity to private lands and non-Forest	None present.

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Service roads.	
Proximity to developed recreation sites outside of the polygon area.	Arrastra Creek TH to the north along Beaver Creek. Pine Grove CG to the east in Beaver Creek.

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 336. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized areas available for summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized use.
Primitive and semi-primitive non-motorized areas available for winter recreation.	Even though the area is open for cross country snowmobile use in the winter, there are still many opportunities for primitive and semi-primitive winter recreational use.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	No constructed trails within this polygon. Area primarily used during hunting season and for hiking. Has potential for mountain biking. No designated snowmobile routes but entire area open to cross country snowmobile travel.

**Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.**

**Table 337. Size and Description**

Size of Polygon	Description
14,303 acres	The polygon is greater than 5,000 acres in size.

**Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.**

**Table 338. Features present**

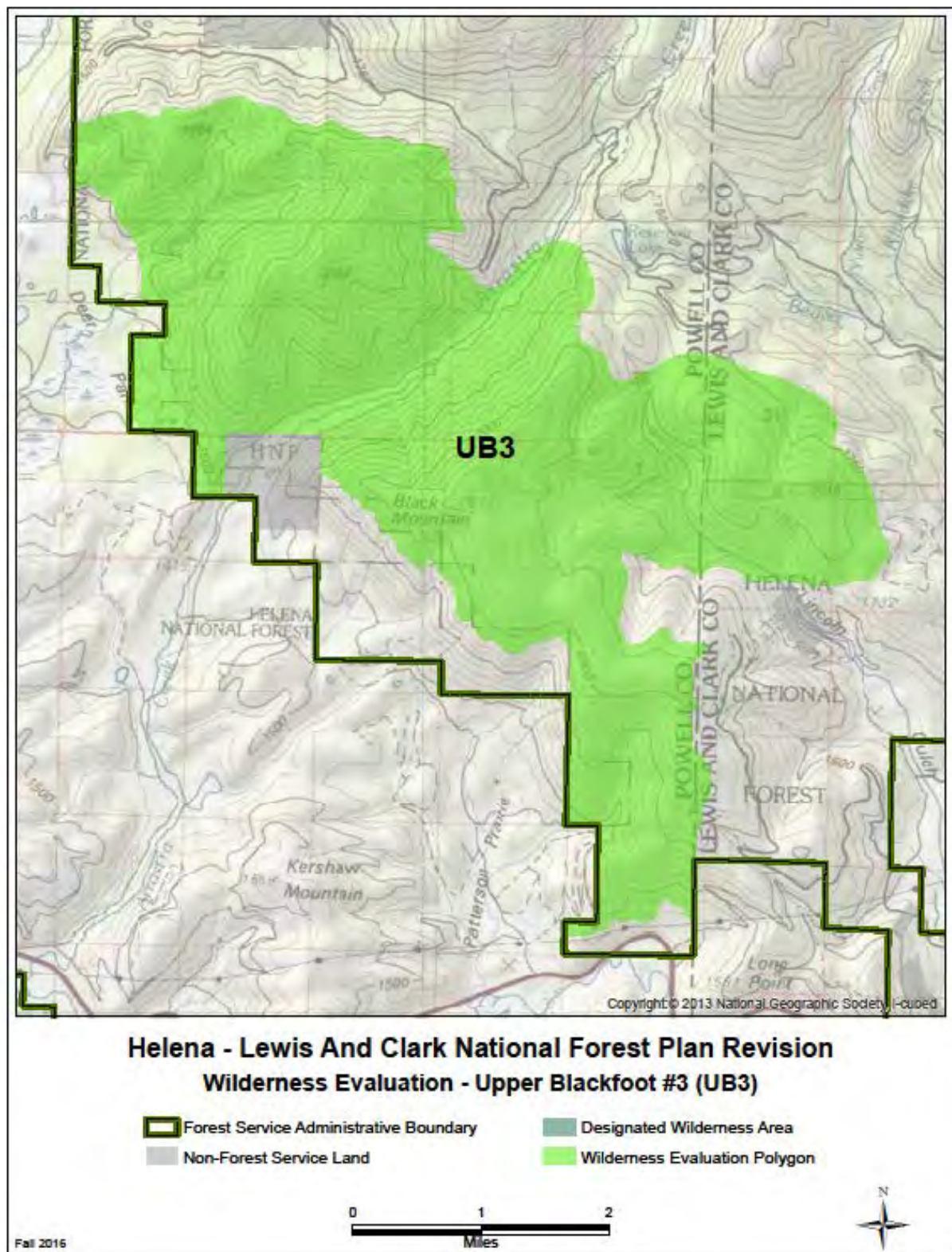
Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern that is known to occur in this area is <i>Pinus albicaulis</i> . Further, although not mapped in VMap, the presence of scattered or minor components of western larch are likely present; this is not a potential SCC but is a species of interest on the HLC NF.
Rare animal species or communities	Federally listed species: grizzly bear (within Recovery Zone and proposed Primary Conservation Area), Canada lynx (within designated Critical Habitat) Potential species of conservation concern and/or state at risk species: western toad Bull and WCT in Arrastra Creek
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and is found in this area. This area is in also proximity to known stands of western larch, which are rare on the HLC NF and

Features	Description and scale
	limited to the far western portion of the Upper Blackfoot GA. No known rare aquatic ecosystems.
Outstanding landscape features	None present.
Historic and cultural resource sites	A small partition of the historic Lincoln Ditch Complex runs through this evaluation area. Other than the ditch complex, no recorded cultural resources.
Research Natural Areas	None present.
High quality water resources or important watershed features	Bull Trout habitat/Arrastra Creek

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 339. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	An irregular shaped polygon the upper slopes of Black Mountain, Lincoln Gulch and either side of Arrastra Creek.
Legally established rights or uses within the area	None known
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known
The presence and amount of non-Federal land in the area	No private land inholdings within the polygon.
Management of adjacent lands	Forest Service system land managed for timber production to the north and east. South of polygon is private residential and mixed ownership with state of MT. Mix of private and BLM to the west.



## Anaconda Hill Area (UB4)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 340. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are Douglas-fir dominated forests, which cover about 64% of the area. Also common are lodgepole pine forests, covering nearly 20%. Subalpine fir and Engelmann spruce mixed forests are found on about 9%, and dry grasslands cover 5%. Other dominance types are found in small amounts, generally covering 1% or less of the area, including shrublands, limber pine, whitebark pine, aspen, and a trace of ponderosa pine. A small area (about 2%) is considered "transitional", where forest cover has not yet recovered after a recent disturbance.
Potential vegetation types	The most common potential vegetation types are warm dry forest types, found on about 57% of the area, likely supporting mainly Douglas-fir. Cool moist forest types make up about 37%, and likely Douglas-fir, lodgepole pine, fir and spruce can be found on these sites. Just a trace amount of cold forest types are present. Dry grassland types cover about 2%, and mesic grassland types about 3%, along with a trace of dry shrubland types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 76 acres within UB4 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 9900 acres potential lynx habitat, with approximately 4300 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 13,000 acres of goshawk potential nesting habitat. Less than 150 acres possible old growth habitat.</li> <li>• Approximately 13,000 acres secure elk habitat. Moose present.</li> <li>• Less than 200 acres potential wolverine habitat.</li> <li>• Grizzly bears, Canada lynx, wolves present.</li> <li>• WCT in Anaconda and Sandbar Creeks, No mapped Bull Trout populations, but habitat is likely present.</li> </ul>
Known non-native wildlife species	No non-native terrestrial or avian species known Non-native trout are likely present

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 341. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	There are no records of past harvest in this area, although it is possible that some historic cutting could have occurred prior to Forest Service record keeping. In particular, in Section 25 on the western side, aerial imagery shows extensive roads and modified vegetation that appears to have been harvested.



Measures	Outcome
% of area without known invasive weeds	According to data as of 2/10/2016, 99.6% of UB4 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 54%, Class 2: 24%, Class 3: 24% (but this is the watershed with the superfund site, downstream of inventory unit) Sandbar Creek on 303(d) list for mining impacts, SF Dearborn River on list from grazing impacts
Miles of motorized road/trail within 300' of streams	0.7 miles
Noticeable wildfire suppression impacts	No large fire occurrence records since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 342. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	Over 99% of this area has had no vegetation treatments of any kind according to available data. There are no records of past harvest. About 207 acres of prescribed burning has occurred, consisting of broadcast burning in 1979 which affected less than 1% of the area, and is no longer substantially noticeable today. However, in addition to the treatments found in available records, some additional areas appear to have been harvested on the western side of the polygon (Section 25). These areas appear well-regenerated but may still be noticeable to viewers on the ground.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present within UB4 however, electronic site on Sunset Mountain to the north is visible from within the polygon.
Areas of mining activities including both abandoned and active mines.	This area overlaps two historic mining districts with numerous unrecorded features associated with past and current mining.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are no range improvements within UB4.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	There is a trail access point at Rogers Pass and developed trailhead at Flesher Pass. The CDNST Trail bisects the polygon.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None known.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known.

Improvement Type	Presence and extent of departure from naturalness
Lands adjacent to development or activities that impact opportunities for solitude.	Extensive mining operations in the Mike Horse drainage. Traffic from Highway 200 and Highway 279 create site and sound impacts. Open roads within proposed to go away in TP. Road to trail conversion proposed south in Sandbar Creek.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	Only three recorded historic properties lie within the boundaries of this study area, however the two historic mining districts overlap this area. There is most likely numerous unrecorded historical and cultural features associated with the historic mining landscape.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness areas in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.7 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic roads. However, there is a high likelihood that numerous unrecorded historic routes associated with past mining exists on the landscape.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 343. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are no motorized trails within the polygon.
Area available for winter motorized opportunity	There is a mixture of areas open and closed to cross country snowmobile use in this polygon.
Proximity to private lands and non-Forest Service roads.	The entire polygon is surrounded by private lands. The northern, eastern and portions of the southern boundaries are with private agricultural lands. The western boundary is formed by Highway 200 and areas with mining impacts.
Proximity to developed recreation sites outside of the polygon area.	Fletcher Trailhead is the only developed site near the polygon. There is a dispersed trailhead at the top of Roger's Pass but it does not have any constructed features and functions as an access point for trails in that area.



Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 344. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized summer recreation. However, the sights and sounds of Highway 200 and nearby mining activities may affect solitude.
Primitive and semi-primitive non-motorized winter recreation.	The opportunities for primitive and semi-primitive non-motorized recreation in winter are limited to those areas that do not allow for cross country snowmobiling.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, hiking, and horseback riding, and mountain biking primarily along the CDNST. Snowmobiling occurs in places within the polygon.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 345. Size and Description**

Size of Polygon	Description
22,318 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 346. Features present**

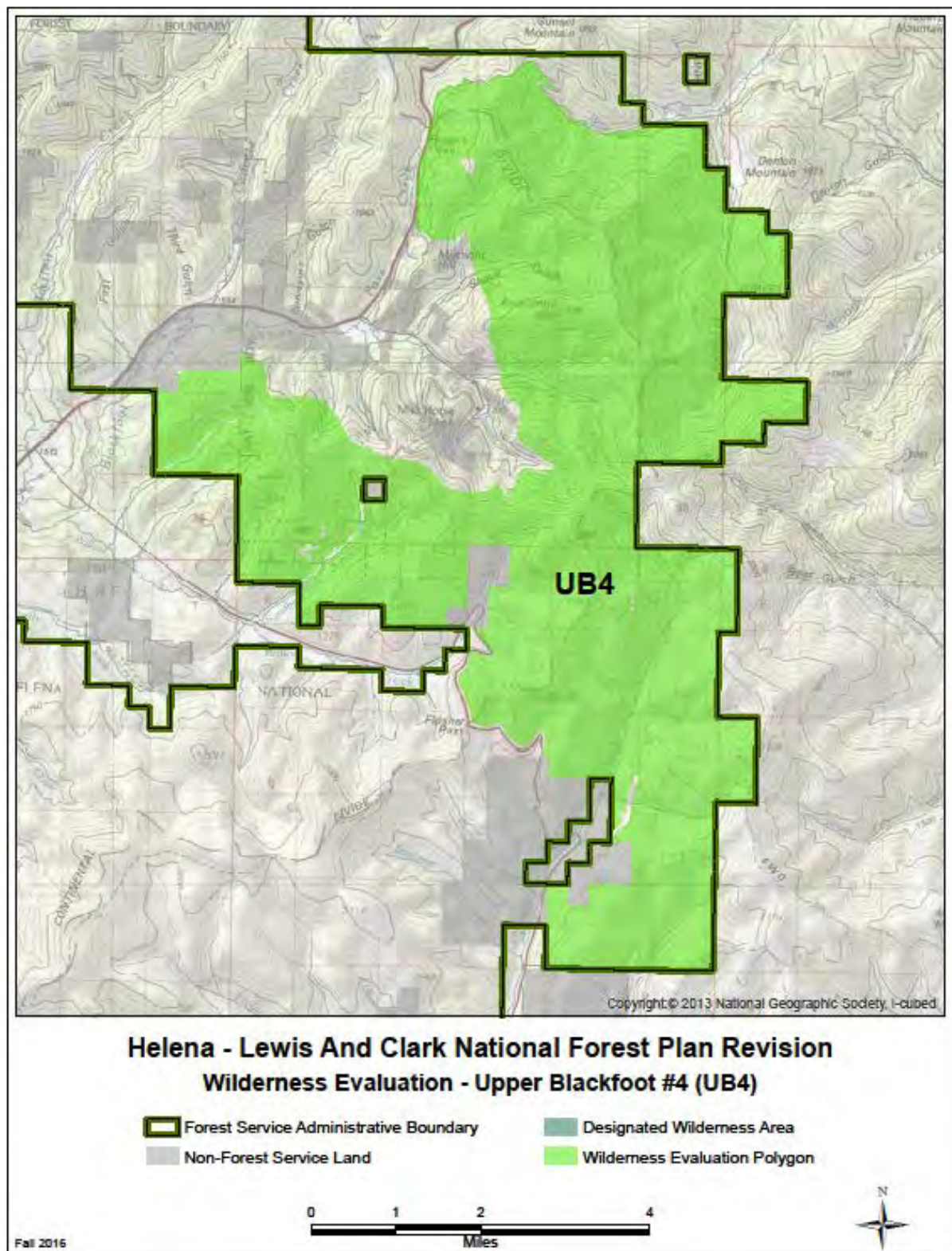
Features	Description and scale
Rare plant communities	The potential plant species of conservation concern that are known to occur in this area include <i>Pinus albicaulis</i> , <i>Draba densifolia</i> , and <i>Lesquerella klausii</i> .
Rare animal species or communities	Federally listed species: grizzly bear (within Distribution Zone and proposed management Zone 1), Canada lynx (within designated Critical Habitat). Potential species of conservation concern and/or state at risk species: wolverine WCT in Sandbar and Anaconda Creeks.
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA and is present in very small amounts in this area. Other vegetation communities of interest on the HLC NF also occur here in very small amounts, including limber pine, aspen, and ponderosa pine. No rare aquatic ecosystems known.
Outstanding landscape features	Open ridges of the Continental Divide. Red cliffs along the southern portion of the CDNST.
Historic and cultural resource sites	Only five recorded historic and cultural sites lies in this study area. However, it's highly likely that numerous unrecorded sites are on the landscape, which could contain scientific or historic value.

Features	Description and scale
Research Natural Areas	None present.
High quality water resources or important watershed features	Anaconda Creek is important WCT fishery.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 347. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	This a large, irregular shaped polygon that straddles the continental divide east and south of Roger's Pass.
Legally established rights or uses within the area	Highway ROWs for Highways 200 and 279. Interior patented mining claim and road associated with it in Sandbar Creek.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Patented mining claim and road associated with it in Sandbar Creek.
Management of adjacent lands	Active mining to the west in Mike Horse Creek. Agriculture and ranching to the east and south.



## Paige Gulch Area (UB5)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 348. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most common dominance types in this area are either Douglas-fir dominated forests (growing on about 52% of the area) and lodgepole pine dominated forests (growing on about 44% of the area). Subalpine fir and Engelmann spruce mixed forests can be found on about 3%, and dry grasslands cover about 2%. Trace amounts of other dominance types, representing less than 0.5% of the area each, are also found and include shrublands, ponderosa pine, limber pine, and aspen.
Potential vegetation types	Cool moist forest types are the most common potential vegetation types in this area, covering about 61% where the likely species present include Douglas-fir, lodgepole pine, fir and spruce. Warm dry forest types are found on 36%, and likely support mostly Douglas-fir. Other potential vegetation types present represent about 1% or less each of the area, and include xeric grassland, mesic grassland, and xeric shrubland types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 157 acres within UB5 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 11,000 acres potential lynx habitat, with approximately 4400 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 15,000 acres of goshawk potential nesting habitat.</li> <li>• Approximately 10,000 acres secure elk habitat. Moose present.</li> <li>• Roughly 1000 acres potential wolverine habitat.</li> <li>• Grizzly bears, Canada lynx, wolves present.</li> <li>• Fisheries: WCT in Black Diamond, Trout Creek, Specimen Creek, + small tributaries. No Bull Trout populations mapped in the polygon, but habitat is likely to be present.</li> </ul>
Known non-native wildlife species	No non-native terrestrial or avian species known Non-native trout likely.

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 349. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	A little over 98% of this area has been unaffected by past timber harvest. According to available records, about 296 acres have been harvested in the past, consisting primarily of salvage cutting in 1963 but also including small clearcut, sanitation, and shelterwood cuts from 1963 to 2012.

Measures	Outcome
% of area without known invasive weeds	According to data as of 2/10/2016, 99.1% of UB5 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 32%, Class 2: 35%, Class 3: 32%. Class 2/3 impacts generally relate to mining impacts downstream from WI unit. No 303(d) listed streams
Miles of motorized road/trail within 300' of streams	3.1 miles
Noticeable wildfire suppression impacts	No large fire occurrence records since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 350. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	About 296 acres, or 1.69% of this area, has had past harvest, primarily in 1963. The most recent treatment was a small sanitation cut in 2012 which left reserve trees. Although all of these areas were determined to be no longer substantially noticeable, most past harvest areas are adjacent to the main road in the middle of the polygon and could be excluded from the boundary if desired. In addition to the harvest, about 1,617 acres in this area have had prescribed burning treatments, consisting primarily of underburning in the 1990's, and broadcast burning for wildlife habitat improvement from 2012 to about 2014. District personnel determined that these treatments were also not substantially noticeable, with effects similar to wildlife. Altogether, vegetation treatments have affected about 9% of the area within this evaluation boundary. Additional past cutting is adjacent to the boundary.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	None present.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are no range improvements within UB5.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	There is a developed trailhead at Flesher Pass. Cummings cabin rental on the northwest. CDNST bisects. Stemple Pass cross country ski trails. Paige Gulch road is open to snowmobiles in winter and is open to motorized travel in the summer. Cross country snowmobile travel is open in the northwestern part of the polygon.

Improvement Type	Presence and extent of departure from naturalness
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None internally.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known
Lands adjacent to development or activities that impact opportunities for solitude.	Active mining in 7UP mining complex to the west. Internal timber harvest and road building by the FS. Highway 200 and residential areas to the north. Residential acres to the south and east.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 6 recorded cultural resources within this polygon. This polygon is within the Stemple-Gould Historic Mining District, therefore it has a high potential for unrecorded sites associated with past mining.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.0 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic routes, however there is a high probability for unrecorded historic routes associated with past mining in the area.

Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 351. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are no motorized trails within the polygon.
Area available for winter motorized opportunity	North of the CDNST is open to cross country snowmobiling; south of the CDNST is closed to cross country snowmobiling. Snowmobiling allowed on the Paige Gulch road.
Proximity to private lands and non-Forest Service roads.	None present
Proximity to developed recreation sites outside of the polygon area.	Fletcher Pass Trailhead. Cummings cabin rental on the northwest.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 352. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The entire polygon is available for primitive and semi-primitive non-motorized summer recreation. Motorized uses do currently occur on the CDNST in this area.
Primitive and semi-primitive non-motorized winter recreation.	The areas south of the CDNST, which are closed to cross country snowmobiling, are available for primitive and semi-primitive non-motorized winter recreation.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, snowmobiling, hiking, mountain biking, and cross country skiing.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 353. Size and Description**

Size of Polygon	Description
20,145 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 354. Features present**

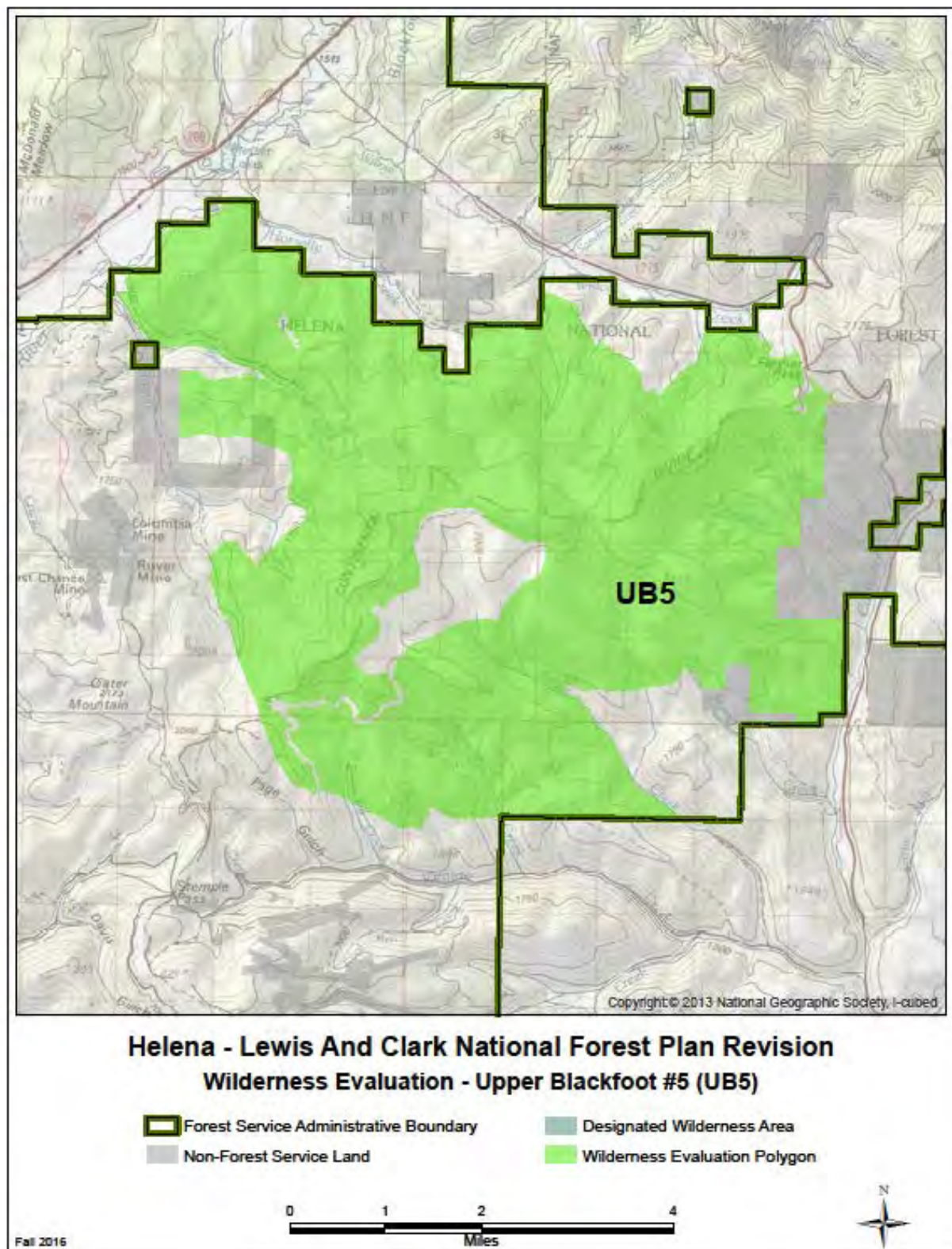
Features	Description and scale
Rare plant communities	The only potential plant species of conservation that is known to occur in this area is <i>Pinus albicaulis</i> , although it is also possible that <i>Pinus flexilis</i> could occur.
Rare animal species or communities	Federally listed species: grizzly bear (within Distribution Zone and proposed management Zone 1), Canada lynx (within designated critical habitat). Potential species of conservation concern and/or state at risk species: western toad No bull trout, several streams with WCT (see above).
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and is present in small amounts in this area. No known rare aquatic ecosystems.
Outstanding landscape features	Open, scenic ridges along the CDNST.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	None present.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 355. Wilderness characteristics**

<b>Factors</b>	<b>Description and scale</b>
Shape and configuration of the area	The area is a large irregular shaped polygon that stretches south and west of Flesher Pass. There is a large exclusion area in the upper reaches of Paige Gulch.
Legally established rights or uses within the area	None known.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	None present.
Management of adjacent lands	The northern boundary is private residential. The western boundary is active mining and timber harvesting and Stemple Pass cross country ski trails. The southern boundary is private residential, ranching, and timber harvest. The eastern boundary is Highway 279 and residential areas.





## Bear Gulch Area (UB9)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 356. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	There is a relatively low diversity of dominance types in this area. The most abundant types are lodgepole pine dominated forests, which cover about 53% of the area. Douglas-fir dominated forests are also common, found on about 40% of the area. Subalpine fir and Engelmann spruce forests grow on just over 6%. Trace amounts of other dominance types are present and represent less than 1% of the area each, and include grasslands, shrublands, and cottonwood.
Potential vegetation types	The most common potential vegetation types are cool moist forest types, representing over 61% of the area and likely supporting Douglas-fir, lodgepole pine, fir, and Engelmann spruce. Warm dry forest potential types are found on 36%, where Douglas-fir likely dominates. Other potential types are present and cover 1% or less of the area each, and include xeric grassland, mesic grassland, and xeric shrubland types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 102 acres within UB9 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 4600 acres potential lynx habitat, with approximately 1500 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Roughly 4800 acres of goshawk potential nesting habitat. Presence of flammulated owl indicates mature, open ponderosa pine habitat.</li> <li>• Approximately 2700 acres secure elk habitat. Moose present.</li> <li>• Roughly 2000 acres potential wolverine habitat.</li> <li>• Grizzly bears, Canada lynx, wolves present.</li> <li>• Fisheries: WCT in EF Willow Creek, possibly Jefferson Creek Trib., McClellan Gulch, and Fields Gulch. Bull Trout mapped in Poorman Creek, along the northern boundary of the polygon.</li> </ul>
Known non-native wildlife species	No non-native terrestrial or avian species known. Non-native trout likely

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 357. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	100% of the area is unaffected by past harvest. There are no records of harvest occurring here, although it is possible that historical logging could have occurred prior to Forest Service record keeping. There is nothing noticeable on aerial photography.

Measures	Outcome
% of area without known invasive weeds	According to data as of 2/10/2016, 88.2% of UB9 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 2: 36%, Class 3: 64% Class 3 primarily due to impacts downstream of WE polygon
Miles of motorized road/trail within 300' of streams	1.1 miles
Noticeable wildfire suppression impacts	No large fire occurrence records since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 358. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present.
Presence of timber harvest or prescribed fire areas	There are no records of past harvest in this area, although there are many harvest units immediately adjacent to the boundary. Prescribed fire treatments have occurred within the area, consisting of about 686 acres of broadcast burning and underburning in 1992 and 2002. This affected about 12% of the area; however, these treatments were determined to not be substantially noticeable, with effects similar to low or mixed severity wildfire.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present.
Areas of mining activities including both abandoned and active mines.	Roads to the abandoned mine sites are still evident. There are active mines along the east boundary of the polygon.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there are no range improvements within UB9.
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	Motorized trail (Helmville-Gould) along southwestern corner. Minimally developed trailhead to the west (Dalton Mountain).
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present.
Presence of watershed treatment areas including contouring, diking, and channeling.	None present.
Lands adjacent to development or activities that impact opportunities for solitude.	There is evidence of mining and timber harvest surrounding the entire polygon. There are agricultural uses to the north.

Improvement Type	Presence and extent of departure from naturalness
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 10 recorded cultural resources within this polygon. This polygon is also within the McClellan/Sauerkraut Historic Mining District which has the high probability of unrecorded sites associated with past mining. Old mining cabins and evidence of mining activity along the western edge. Crisscrossed with old trails and roads.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	0.8 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic routes within this polygon. However, there is the potential for unrecorded historic routes associated with past mining in the area.

**Criteria 2.** Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 359. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	Motorized use on Helmville-Gould trail and dispersed cross country foot traffic.
Area available for winter motorized opportunity	Entire area open to cross country snowmobile travel.
Proximity to private lands and non-Forest Service roads.	None present.
Proximity to developed recreation sites outside of the polygon area.	Dalton Mountain trailhead (minimally developed).

*Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?*

**Table 360. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	The majority of the area holds opportunities for primitive and semi-primitive non-motorized recreation. These opportunities may be limited in the portions of the polygon that lie adjacent the Helmville-Gould trail which is open to motorized use in the summer.
Primitive and semi-primitive non-motorized winter recreation.	The area is available for primitive and semi-primitive non-motorized uses in winter but the presence of cross country snowmobile uses may affect these experiences.
Known existing primitive/unconfined types of	Hunting, hiking, horseback riding, and ATV riding in the summer.

Measures	Descriptions and Locations
recreation uses, including nonconforming uses.	Snowmobiling in the winter.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 361. Size and Description**

Size of Polygon	Description
7, 591 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 362. Features present**

Features	Description and scale
Rare plant communities	There are no potential plant species of conservation concern that are known to occur in this area.
Rare animal species or communities	Federally listed species: grizzly bear (within Distribution Zone and proposed Management Zone 1), Canada lynx (within designated critical habitat). Potential species of conservation concern and/or state at risk species: flammulated owl Fisheries: WCT in EF Willow Creek, possibly Jefferson Creek Trib., McClellan Gulch, and Fields Gulch.
Rare ecosystems	There are no known rare terrestrial ecosystems in this area. No known rare aquatic ecosystems.
Outstanding landscape features	None.
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Bull Trout and WCT fisheries.

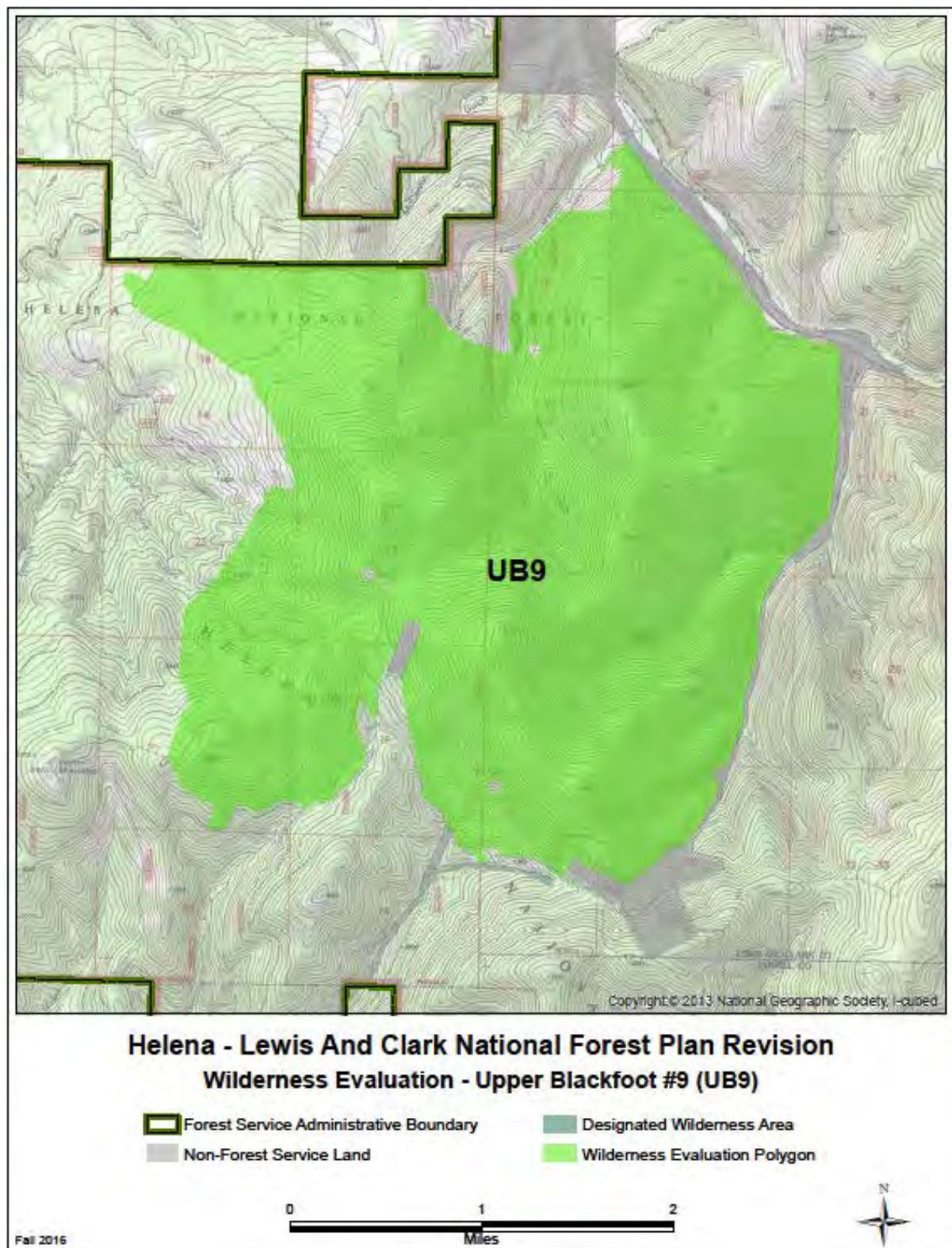
Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 363. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	Irregular shaped polygon which lies south and west of Poorman Creek. Shape of the polygon on the west side is influenced by patented mining claims.
Legally established rights or uses within the area	None present.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to	None known.

<b>Factors</b>	<b>Description and scale</b>
protect wilderness characteristics	
The presence and amount of non-Federal land in the area	No private land inholdings within the polygon. Patented mining claims lay outside of the polygon around the border.
Management of adjacent lands	Timber production and mining to the south and west. Rangeland to the north. Strip of private lands along McClellan Creek to the east.





## Nevada Mountain Area (UB10)

Criteria 1. Evaluate the degree to which the area generally appears to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable.

*Question 1a. What is the composition of plant and animal communities within the area?*

**Table 364. Plant and animal communities**

Plant and Animal Communities	Composition
Existing vegetation dominance types	The most abundant dominance types in this area are lodgepole pine dominated forests, which cover about 44% of the area. Douglas-fir dominated forests are also common, found on about 39% of the area. Subalpine fir and Engelmann spruce mixed forests occur on roughly 13% of the area, and dry grasslands are found on nearly 2%. Other dominance types are present in very small amounts, representing less than 1% of the area each, and include shrublands, whitebark pine, limber pine, cottonwood, and aspen. There are some sparsely vegetated areas as well (scree/rock).
Potential vegetation types	The most common potential vegetation types in this area are the cool moist forest types, which represent about 65% of the area and likely support pure or mixed forests of Douglas-fir, lodgepole pine, fir, and spruce. Warm dry forest potential types are found on about 32%, and likely primarily support Douglas-fir. Cold forest types are found on just over 1%, where whitebark pine is most likely to grow. Very small amounts of other potential types are also present, including xeric grassland, mesic grassland, and xeric shrubland types.
Known non-native terrestrial plant species	According to data as of 2/10/2016, 335 acres within UB10 are associated with invasive plant inventories.
Status and extent of existing native wildlife species and communities	<ul style="list-style-type: none"> <li>• Functioning mature forest habitat: 35,000 acres potential lynx habitat, with nearly 12,000 acres mature multi-storied (optimal lynx winter forage) based on existing and potential vegetation type. Over 36,000 acres of goshawk potential nesting habitat.</li> <li>• Approximately 33,000 acres secure elk habitat.</li> <li>• Roughly 29,000 acres potential wolverine habitat.</li> <li>• Grizzly bears, Canada lynx, wolves present.</li> <li>• WCT and Bull Trout in Nevada Creek, WCT in Washington and Threemile Creeks.</li> </ul>
Known non-native wildlife species	No non-native terrestrial or avian species known. Non-native trout likely

*Question 1b. What is the extent to which the area reflects ecological conditions that would normally be associated with the area without human intervention?*

**Table 365. Ecological conditions**

Measures	Outcome
% of area without past timber harvest	Available records show that there have been about 291 acres of past harvest in this area, consisting of thinning, uneven-aged cuts, liberation cuts, and seed tree cuts from 1964 to 1992. There was also a small clearcut in 1958. These areas cover about 0.57% of the area; over 99% of the area has been unaffected by harvest.



Measures	Outcome
% of area without known invasive weeds	According to data as of 2/10/2016, 99.3% of UB10 is not associated with invasive plant inventories.
% of area within watersheds in watershed condition classes 1, 2, and 3	Class 1: 9%, Class 2: 31%, Class 3: 60%. Class 3 primarily due to mining activities occurring downstream from WE polygon; Washington Creek watershed impacted by dewatering, dredge mining, roads, and grazing. Washington Creek is on 303(d) list for mining impacts and Nevada Creek is on 303(d) list for Agriculture, Grazing Sources, Placer Mining, Resource Extraction issues—but could be related to activities downstream of the polygon
Miles of motorized road/trail within 300' of streams	10.4 miles
% of area without noticeable wildfire suppression impacts	No large fire occurrence records since 1980.

*Question 1c. What is the extent to which improvements in the area represent a departure from apparent naturalness?*

**Table 366. Improvements and extent of departure from naturalness**

Improvement Type	Presence and extent of departure from naturalness
Airstrips	None present
Presence of timber harvest or prescribed fire areas	All of the past harvests that occurred in this area (291 acres total, from 1958 to 1992) were determined to be no longer substantially noticeable on the landscape. In addition to harvest, about 2,375 acres (or 4.65% of the area) has been treated with prescribed fire. About 80 acres of this were pile burning or jackpot burning following past harvest treatments. The remainder (and bulk) of the burning was underburning from 1991 to 2004, most commonly as part of the Poorman project. These areas were also determined to be not substantially noticeable on the landscape, with effects similar to wildfire. Over 95% of the evaluation area has been unaffected by any vegetation treatment.
Presence of permanently installed vertical structures, such as electronic installations including cell towers, television, radio, and telephone repeaters.	None present
Areas of mining activities including both abandoned and active mines.	Mining impacts/roads in Washington Creek, primarily downstream of WE polygon, roads around Nevada Creek too, mostly downstream of polygon. Active mining in this polygon, including placer plus lode mining. There are a lot of known unpatented claims with pre-existing rights.
Range improvement areas, involving minor structural improvements (fences or water troughs) and non-structural improvements (chaining, burning, spraying, potholing, and so forth).	According to current data there is approximately 1 mile of fencing and 2 stock water tanks within UB10.

Improvement Type	Presence and extent of departure from naturalness
Recreational improvements, such as occupancy spots, or minor hunting, or outfitting camps within the polygon area.	The Helmville-Gould Trail is designated for motorized use. The CDNST is motorized/non-motorized and bisects the polygon. There are non-motorized trails in Nevada Creek, Prickly Pear Gulch and Washington Gulch. The Nevada Creek TH is located west of the polygon. The Nevada Creek Admin Cabin is in Nevada Creek. The Helmville Gould TH is located on eastern edge. Snowmobiles are not authorized in the polygon area.
Presence of ground-return telephone lines, electric lines, and power lines if a right-of-way has not been cleared. Visible presence of power lines, pipelines, and other permanently installed linear right-of-way structures.	None present. ROW in Washington Creek for patented mining claim inholdings.
Presence of watershed treatment areas including contouring, diking, and channeling.	None known
Lands adjacent to development or activities that impact opportunities for solitude.	Mines in Washington Creek to the west. Timber harvest and road building to the north. Active timber harvest on FS lands to west. Stemple Pass road to the north.
Structures, dwellings, and other relics of past occupation that are considered part of the historical and cultural landscape of the area.	There are 28 recorded cultural resources within this polygon. This polygon also overlaps three historic mining districts with have numerous unrecorded relics of past mining activity.
Areas that have been proposed by the FS for consideration as recommended wilderness as a result of previous Forest planning process.	Not recommended as wilderness in the 1986 Forest Plan.
Number of miles of maintenance level 1 road templates.	10.9 miles
Number of miles of historic road templates, including historic mining routes, wagon routes, or other settlement era transportation.	No recorded historic routes. However, there is the high potential for unrecorded routes associated with past mining.

**Criteria 2. Evaluate the degree to which the area has outstanding opportunities for solitude or for a primitive and unconfined type of recreation.**

*Question 2a. What impacts are pervasive and influence a visitor's opportunity for solitude? What are the factors that may mitigate those impacts?*

**Table 367. Impacts influencing solitude**

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
Area available for summer motorized opportunity	There are three motorized trails within the polygon: Trail 467 (Helmville-Gould), Trail 487, and Trail 440 (part of the CDNST).
Area available for winter motorized opportunity	Except for an area just south of Jefferson Creek which is open to cross country snowmobiling, the rest of the area is closed to cross country snowmobile use.
Proximity to private lands and non-Forest Service roads.	Patented mining claims and access road in Washington Creek.
Proximity to developed recreation sites	Nevada Creek TH, Helmville Gould TH, and Seller Gulch TH.

Impacts	Mitigating Factors (include topography and screening that influence pervasive sights and sounds)
outside of the polygon area.	Nevada Creek Admin Cabin in Nevada Creek.

Question 2b. What primitive-type or unconfined-type of recreation activities are available in the area that would contribute to the visitors ability to feel a part of nature?

**Table 368. Primitive or unconfined types of recreation**

Measures	Descriptions and Locations
Primitive and semi-primitive non-motorized summer recreation.	Except for areas immediately surrounding the 3 motorized trails, there are abundant opportunities available for primitive and semi-primitive recreation in the summer.
Primitive and semi-primitive non-motorized winter recreation.	Except for the area just south of Jefferson Creek where cross country snowmobiling is allowed, the majority of this polygon is available for primitive and semi-primitive recreation in the winter.
Known existing primitive/unconfined types of recreation uses, including nonconforming uses.	Hunting, CDNST, hiking, horseback riding, and mountain biking. Some ATV use on non-motorized trails.

Criteria 3. Evaluate how an area less than 5,000 acres is of a sufficient size to make its preservation and use in an unimpaired condition practicable.

**Table 369. Size and Description**

Size of Polygon	Description
58,531 acres	The polygon is greater than 5,000 acres in size.

Criteria 4. Evaluate the degree to which the area may contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

**Table 370. Features present**

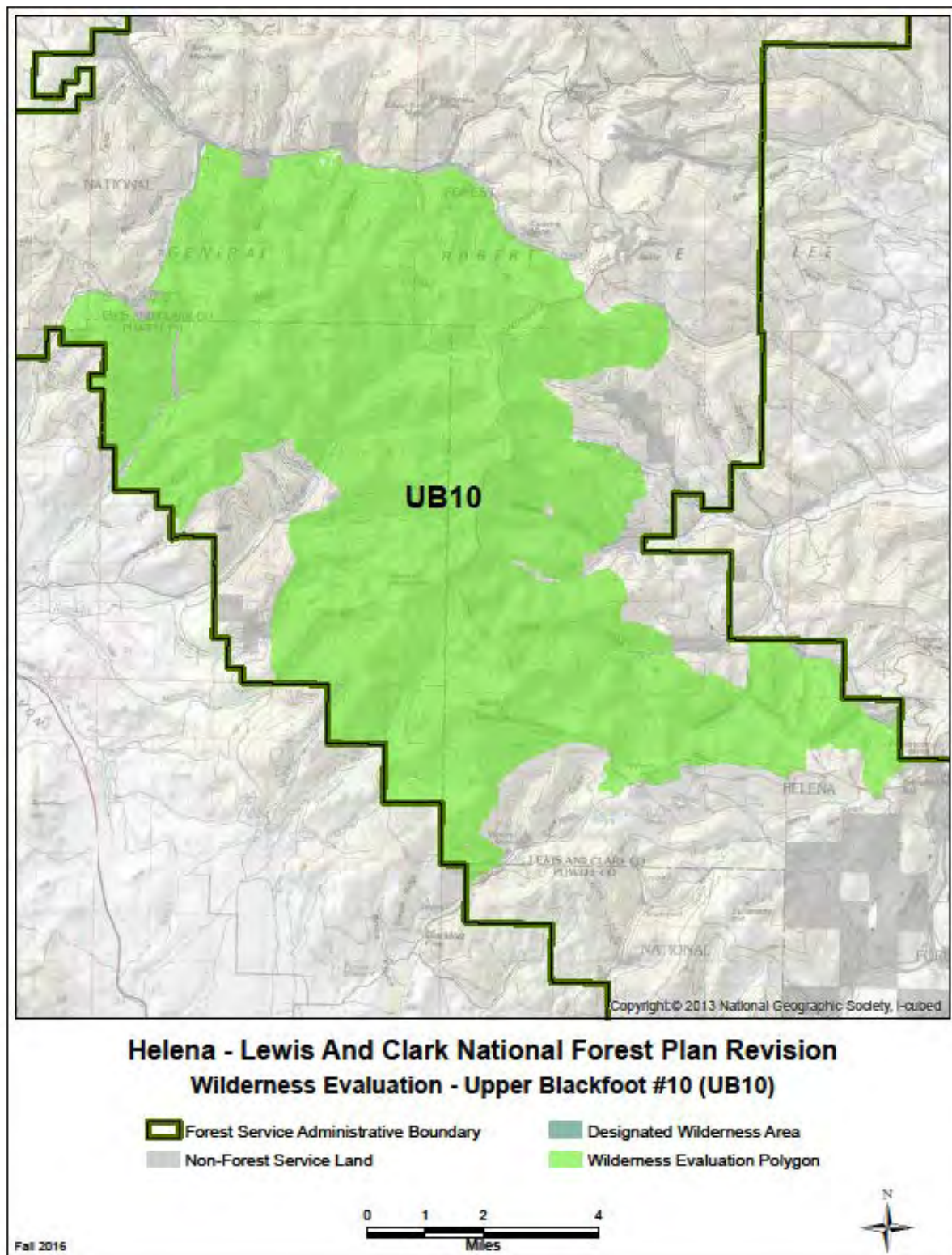
Features	Description and scale
Rare plant communities	The only potential plant species of conservation concern known to occur in this area are <i>Pinus albicaulis</i> and <i>Pinus flexilis</i> .
Rare animal species or communities	Federally listed species: grizzly bear (within Distribution Zone and proposed Management Zone 1), Canada lynx (within designated critical habitat). Potential species of conservation concern and/or state at risk species: none documented WCT and Bull Trout in Nevada Creek, WCT in Washington and Threemile Creeks
Rare ecosystems	Whitebark pine is a candidate species for listing under the ESA, and is present in very small amounts in this area. Limber pine and aspen communities are also of interest on the HLC NF and are present in small amounts as well. No known rare aquatic ecosystems.
Outstanding landscape features	Nevada Mountain, Black Mountain and open scenic ridges along the CDNST.

Features	Description and scale
Historic and cultural resource sites	All recorded cultural resources within this polygon have the potential for scientific, educational, or historic value.
Research Natural Areas	None present.
High quality water resources or important watershed features	Bull Trout and WCT populations.

Criteria 5. Evaluate the degree to which the area may be managed to preserve its wilderness characteristics.

**Table 371. Wilderness characteristics**

Factors	Description and scale
Shape and configuration of the area	A large polygon that includes much of the undeveloped mountainous landscape surrounding Nevada Mountain on both sides of the continental divide.
Legally established rights or uses within the area	Patented mining claims and access road inholding. There are a lot of known unpatented claims with pre-existing rights.
Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics	None known.
The presence and amount of non-Federal land in the area	Patented mining claim in Washington creek.
Management of adjacent lands	Mining and timber harvesting surround the polygon. There is extensive rangeland in the Helmville Valley. The Great Divide Ski Area is visible from the CDNST in several locations.





# Appendix G. Wild and Scenic Rivers Eligibility Study Process

## Table of Contents

Introduction .....	1
Relevant Laws, Regulations, and Policy .....	1
National Wild and Scenic Rivers System Act of 1968 (WSRA) .....	1
Regulations .....	2
Eligibility Process Overview .....	2
Eligibility Process Details.....	4
Step 1: Identify all free-flowing named streams.....	4
Step 2: Identify the region of comparison for each resource.....	4
Step 3: Develop evaluation criteria to identify ORVs .....	5
Step 4: Evaluate named streams and determine if they are free-flowing and possess ORVs.....	7
Step 5: Classification of eligible streams.....	8
Step 6: Develop management direction to be included in the proposed action.....	10
Summary of Wild and Scenic Rivers Eligibility Study .....	13
Eligible Wild and Scenic Rivers Description Tables and Maps .....	19
Big Belts Geographic Area.....	20
Divide Geographic Area .....	28
Elkhorns Geographic Area.....	38
Highwoods Geographic Area .....	40
Little Belt Mountains Geographic Area.....	48
Rocky Mountain Range Geographic Area .....	64
Snowies Geographic Area .....	104
Upper Blackfoot Geographic Area .....	108

## List of Tables

Table 1. Summary of the wild and scenic rivers process .....	3
Table 2. Final eligibility evaluation criteria .....	5
Table 3. Classification criteria for wild, scenic, and recreational rivers.....	9

Table 4. Protection measures for eligible wild, scenic, or recreational rivers.....	11
Table 5. Potential Eligible wild and scenic rivers by geographic area .....	15



## Introduction

Following the adoption of the 1986 Forest Plans, both the Helena and the Lewis and Clark National Forests conducted wild and scenic rivers eligibility studies. During these late 1980's studies the Helena National Forest identified four rivers and the Lewis and Clark National Forest identified nine rivers as eligible for wild and scenic rivers designation. Determinations for eligibility were made using the process outlined in the National Wild and Scenic Rivers System Act of 1968. The results of these studies were adopted in 1989 as forest plan amendments to both national forest plans.

In 2015, under the direction of the 2012 Planning Rule (36 CFR Part 219), a new wild and scenic rivers eligibility study was conducted for the Helena - Lewis and Clark National Forest's (HLC NFs) planning area. The 2015 eligibility study reviewed the earlier work from the 1989 effort and determined that an additional, more comprehensive study was required to fulfill the mandates set forth in the 2012 Planning Rule. In the 2015 study, all named and free flowing streams/rivers within the HLC NF planning area were considered. The results of that comprehensive look are included in this document.

The designation of eligible wild and scenic rivers pertains only to federally owned lands. Rivers and segments of rivers that pass through private lands were not considered in this study.

## Relevant Laws, Regulations, and Policy

### National Wild and Scenic Rivers System Act of 1968 (WSRA)

Congress passed the National Wild and Scenic Rivers System Act of 1968 (Public Law 90-542; 16 U.S.C. 1271 et seq.) for the purpose of preserving rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations. The Act is recognized for safeguarding the special character of these rivers, while also allowing for their appropriate use and development. The Act promotes river management across political boundaries and public participation throughout the process.

During the forest planning process, whether for revision or initial development, the Forest Service must review all streams for their potential eligibility for designation in the National Wild and Scenic Rivers System (NWSRS) as directed under section 5(d)(1) the National Wild and Scenic Rivers Act of 1968 (PL 90-542:16 USC 1271-1287, as amended).

*Section 1(b) of the Act expresses Congressional policy for America's rivers: It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital conservation purposes.*

## Regulations

The National Forest Management Act (NFMA) requires the Forest Service to develop a planning rule under the principles of the Multiple-Use Sustained-Yield Act of 1960 (MUSYA) which sets the process for the development and revision of land management plans. In 2012, 36 CFR Part 219 was passed to codify the direction in the NFMA and the MUSYA. This regulation is known as the 2012 Planning Rule. The 2012 Planning Rule's Final Directives (FSH 1909.12 Chapter 80) provide additional guidance for conducting a wild and scenic rivers eligibility study during forest plan revision. The HLC NF used this guidance to conduct the wild and scenic rivers eligibility study for the HLC NF planning area.

## Eligibility Process Overview

In May 2015, a wild and scenic rivers eligibility process paper was developed which outlined the step by step process planned to be used to conduct a wild and scenic rivers eligibility study within the HLC NF planning area. This process paper was made available to the public by posting on the HLC NF Plan Revision website and was updated after public review and comment. The following steps to an eligibility study were identified in the process paper.

- Step 1: Identify free-flowing named streams/rivers.
- Step 2: Identify regions of comparison (ROC) for each resource.
- Step 3: Develop evaluation criteria for identifying outstanding remarkable values (ORVs).
- Step 4: Evaluate named streams/rivers and determine if they possess ORVs.
- Step 5: Review level of development/determine classification (wild, scenic, or recreational)
- Step 6: Develop forest plan management direction (to be included in the proposed action)

The eligibility study was conducted through a series of meetings and workshops aimed at each of the steps identified in the process paper. Much of the base information was developed from geographic information systems (GIS), such as the base maps, determining the number and location of all “named streams”, and identifying the location of developments along or nearby these rivers and streams. Specific resource information about each river/stream was gathered from maps and professional knowledge provided by forest resource specialists.

The results of the eligibility process are contained in this wild and scenic rivers eligibility study document. It includes river data, description tables, and maps which are located below in the Eligible Wild and Scenic River Description Tables and Maps section starting on page 19.

The results of the study were provided for public comment and review in late 2015. This comment and review period ended on January 15, 2016. Changes to the study were made as a result of this public input.

The following table provides a summary of each step of the process, the timeframe in which it was accomplished and the tasks completed for that step in the process.

**Table 1. Summary of the wild and scenic rivers process**

<b>WSR Step</b>	<b>Dates Completed</b>	<b>Accomplishments</b>
<b>Pre-process: Process white paper.</b>	May 2015	The Wild and Scenic Rivers Eligibility Study process paper was posted on the website for public information.
<b>Step 1: Identified free-flowing named streams/rivers</b>	March 2015	All free flowing rivers, identified on a USGS 7.5 minute quad map, were identified and organized by Geographic Area. Previously identified rivers/streams were reviewed to determine if changes to their free-flowing characteristics had changed since the earlier 1989 eligibility study.
<b>Step 2: Region of Comparison</b>	April 2015 (Workshop)	A Wild and Scenic Rivers eligibility study workshop was conducted with forest specialists present to represent the resources of scenery, geology, recreation, wildlife, fisheries, cultural resources, and plants. The Region of Comparison (ROC) was decided upon by each resource. All specialists felt that the State of Montana would be the most appropriate ROC.
<b>Step 3: Develop Evaluation Criteria for Outstanding Remarkable Values (ORVs)</b>	April 2015 (Workshop)	Evaluation Criteria were developed for each resource to determine whether an ORV might be present on each stream/river.
<b>Step 4 (Part I): Evaluate each named stream/river.</b>	April 2015 (Workshop)	Each named stream/river within the HLC NF that had been identified as free-flowing was evaluated against the ORV criteria for each resource. This evaluation determined the presence or absence of a potential ORV.  There are 1,016 named streams which are free-flowing on the HLC NF. At the end of the workshop, 73 of these streams/rivers were identified as having potential ORVs. Some of these needed additional study (or analysis).
<b>Step 4 (Part II): Continue the evaluation of named streams/rivers.</b>	May 2015	Continued evaluation of the potential streams/rivers and the refinement of the location of ORVs.
<b>Step 4 (Part III): Refine the evaluation of named streams/rivers.</b>	June/July 2015	Met with Fisheries, Geology, Wildlife, and Cultural resource staff to refine the evaluation of potential streams/rivers and ORVs.  At the end of the refinement of Step 4, 40 potentially eligible WSR streams/rivers remained on the list of eligible streams.
<b>Step 5: Review level of development and determine potential classification</b>	July 2015	Using GIS to determine amount of development along each river, including road and trail density or other shoreline development, a classification was assigned each eligible stream/river. These classifications are Wild, Scenic, or Recreational. Different stream/river segments may have different classifications.
<b>Step 6 (Part I): Document and describe the ORVs on each eligible stream/river</b>	August 2015	Separate description tables and maps were developed for each eligible stream/river. Each description table provides a narrative for the ORVs of that stream/river.  40 rivers were identified as eligible in this initial study.
<b>Step 6 (Part II): Develop management direction for these rivers to</b>	August/September 2015	Management direction for the eligible rivers was developed and is included in the proposed action.

<b>WSR Step</b>	<b>Dates Completed</b>	<b>Accomplishments</b>
<b>be included in the Proposed Action</b>		
<b>Public Comment and Review period</b>	November 2015 – January 2016	Public provided comment and review on the process and the eligibility list.
<b>Development of Final Eligibility List</b>	April 2016	Internal IDT meeting reviewed public comments and updating the eligibility list with additional resource information. This resulted in the addition of 6 new rivers, the removal of one, and changes to the assigned classification of several rivers.

## Eligibility Process Details

### Step 1: Identify all free-flowing named streams

The Wild and Scenic Rivers Systems Act (WSRA) defines “free-flowing” as existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the national system does not automatically disqualify it for designation, but future construction of such structures is not allowed. The guidelines state, “the fact that a river segment may flow between large impoundments will not necessarily preclude its designation. Such segments may qualify if conditions within the segment meet the eligibility criteria.”

“Free flowing” includes rivers with intermittent flows that are enough to maintain the ORV. The river doesn't have to be boatable or floatable, as long as the flow is enough to maintain the ORV.

All free-flowing and named rivers/streams, identified on a U.S. Geological Survey 7.5 minute quadrangle map within the HLC NF planning area, were identified and organized by geographic area (GA). The named streams were identified using the National Hydrography Dataset (NHD) flowline feature class from the NHD and the associated stream names from the geographic names information system (GNIS). Previously identified rivers/streams were reviewed to determine if changes to their free-flowing characteristics had changed since the earlier 1989 eligibility study.

Through this review, it was determined that there are 1,016 named rivers/streams within the HLC NF planning area. These named rivers/streams were documented in a spreadsheet (see appendix A) and were carried forward to be studied for potential eligibility. A few un-named tributaries were also analyzed that were important for fisheries ORVs.

### Step 2: Identify the region of comparison for each resource

The region of comparison is a geographic area that provides the basis for meaningful comparative analysis of potentially eligible rivers. The forest plan revision team identified the area of consideration for each resource (and ORV within each resource) which then served as the basis for meaningful comparative analysis. The following further describes aspects and importance of the region of comparison:

- The region of comparison may vary for different rivers and for different resource ORVs.
- The region of comparison should be scaled at an appropriate level for the type of river value being evaluated. For example, the appropriate region of comparison for scenic values may be an entire

national forest or grassland, while for cultural values it may be the portion of the state in which the river is located.

- Alternatively, the responsible official may conclude that a single region of comparison can encompass the evaluation of outstanding remarkable values.
- Once the region of comparison is identified, a river's values can then be analyzed in comparison with other rivers in that area. Each value may have its own region of comparison and, thus, multiple regions of comparison may be utilized to evaluate one river.

During the April 2015 wild and scenic river workshop, the team determined the regions of comparison for each resource area. Because the HLC NF planning area is large with a wide variety of unique resource and river values, it was recognized that a large region of comparison would be necessary to adequately study the eligible rivers/streams.

Each specialist considered many potential areas to use for the region of comparison for their resource area. Some of those areas included ecological sections, domain, provinces, regions used in the 1988 Pacific Northwest Rivers Analysis, state of Montana recreation regions from the State Comprehensive Outdoor Recreation Report, state of Montana Fish, Wildlife and Parks regions, Forest Service Region 1 boundaries, and potential inclusions of the Greater Yellowstone Ecosystem, etc. After considerable discussion, the team chose the boundary for the State of Montana as the region of comparison for this wild and scenic eligibility study. This region of comparison was acceptable for all resource areas and served as the basis for meaningful comparative analysis in the eligibility process.

### Step 3: Develop evaluation criteria to identify ORVs

The Wild and Scenic Rivers System Act establishes a set of categories for determining the ORVs for resource areas. The Forest Service has further established baseline criteria to foster greater consistency within the agency and with other federal river-administering agencies in evaluating eligibility under Forest Service Handbook (FSH) 82.14a. The evaluation criteria set minimum thresholds in the establishment of each ORV. The criteria within the resource category may be modified and additional criteria may be included to make them more meaningful in the area of comparison.

During the April 2015 wild and scenic river workshop, the team established baseline evaluation criteria for scenery, recreation, geology, fish populations and habitat, wildlife populations and habitat, historic and cultural resources, and other natural river related values. The final evaluation criteria for each resource area are documented in the following table. These criteria were applied in the 2015 eligibility study process.

**Table 2. Final eligibility evaluation criteria**

Resource	FINAL Eligibility Criteria
Scenic	The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features and/or attractions, that provide river users with scenery that is spectacular and/or not common to other rivers in the region. When analyzing scenic values, additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse over the majority of the river or river segment.

Resource	FINAL Eligibility Criteria
Recreation	<p>Recreational opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. River-related opportunities include, but are not limited to, sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. The river may provide settings for national or regional usage or competitive events.</p> <p><u>Recreational Fishing</u>: Recreational fishing opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region.</p>
Geologic	<p>The river, or the area within the river corridor, contains one or more examples of a geologic feature, process, or phenomenon that is unique or rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a “textbook” example, and/or represent a unique or rare combination of geologic features (erosional, volcanic, glacial, or other geologic structures).</p>
Fishery	<p>Fish values may be judged on the relative merits of either fish populations or habitat, or a combination of these river-related conditions.</p> <p><u>Populations</u>: The river is nationally or regionally an important producer of resident and/or anadromous fish species. Diversity of fish species or the presence of wild stocks and/or Federal or State listed or candidate threatened, endangered, or species of conservation concern are of particular significance</p> <p><u>Habitat</u>: The river provides uniquely diverse or high quality habitat for fish species indigenous to the region of comparison. Exemplary habitat for wild stocks and/or Federal or State listed or candidate threatened, endangered, or species of conservation concern is of particular significance.</p>
Wildlife	<p>Wildlife values may be judged on the relative merits of either wildlife populations or habitat, or a combination of these river-related conditions.</p> <p><u>Populations</u>: The river or river corridor contains nationally or regionally important or uniquely diverse assemblage populations of indigenous wildlife species, particularly federal or state listed or candidate threatened or endangered species or species of conservation concern.</p> <p><u>Habitat</u>: The river or river corridor provides uniquely diverse or uniquely high quality habitat for wildlife of national or regional significance (e.g. federal or state listed or candidate threatened or endangered species or species of conservation concern), particularly where such habitats meet the year-round or important seasonal biological needs of the species.</p>
Cultural	<p>The river, or area within the river corridor, contains important evidence of occupation or use by humans. Sites may have national or regional importance for interpreting history or prehistory.</p> <p><u>History</u>: Site(s) or feature(s) associated with a significant event, an important person, or a cultural activity of the past that was rare or one-of-a-kind in the region. A historic site or feature, in most cases, is 50 years old or older.</p> <p><u>Pre-history</u>: Sites may have unique or rare characteristics or exemplary human interest value; represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups, or may have been used for rare sacred purposes</p>
Plants	<p>Populations of plant species are growing in and associated with the area in the river corridor that are judged to be of national or regional significance by virtue of their scarcity; outstanding scientific or educational value; and/or designation as threatened, endangered or proposed for threatened or endangered status. This may include known stands of federally listed threatened or endangered plant species, those listed as category 1 or 2 by the United States Fish and Wildlife Service, or those proposed for threatened or endangered status by the Montana Rare Plant Project or Montana Natural Heritage Program, and those identified as species of conservation concern.</p>

During the May 20, 2015 team meeting, the team looked and each potentially eligible stream river and made the determination of whether the ORV was of regional or national significance. Regional or national significance was documented in the wild and scenic river stream table excel spreadsheet and within the description tables for each potentially eligible river/stream. Specific river data, description tables, and

maps are located below in the Eligible Wild and Scenic River Description Tables and Maps section starting on page 19.

## Step 4: Evaluate named streams and determine if they are free-flowing and possess ORVs

During the April 2015 wild and scenic river workshop, the team systematically reviewed all 1,016 named and free-flowing streams and compared them to the final evaluation criteria to identify the presence of ORVs. In some instances additional unnamed streams were examined for potential ORVs. The interdisciplinary team (IDT) applied the evaluation criteria to each stream along with the following requirements from the WSRA.

- Outstandingly remarkable values must be river related,
- Be located in the river or on its immediate shore lands (generally within ¼ mile on either side of the river), but may include adjacent areas needed to protect identified values,
- Contribute substantially to the functioning of the river ecosystem, and/or
- Owe the location or existence to the presence of the river.

The IDT considered the area within one-quarter mile of the high water marks on both sides of a river, as well as other features outside this corridor, such as tributaries supporting rearing and spawning habitat, if their inclusion is essential for the protection of the river's ORVs. Additional factors considered by the IDT for each stream were:

- Determine if resource values/attributes are unique, rare, or exemplary within the region of comparison which is the state of Montana.
- Determine if a river may qualify for a given resource value based upon an aggregate of important values, no one of which would confer eligibility standing alone. For example, a series of unusual and distinctive river-related geologic features may together qualify a segment as exhibiting an “outstandingly remarkable geologic value” even though no one element meets the criteria alone.

The determination that a river area does or does not contain one or more ORVs is a professional judgment on the part the responsible official as informed by an interdisciplinary team, best available scientific information (BASI), and public participation. (FSH 1909.12 Ch 82.17)

The systematic approach used by the ID Team included reviewing the streams within hydrologic unit code (HUC) 10 watersheds that were further grouped by geographic area. ArcMap was used to display the names streams in context with spatial data representing attributes of the resource themes associated with identification of ORVs. The ID Team identified the streams with potential ORVs based on application of the evaluation criteria and comparison to other similar resources in the state of Montana. For each resource value the IDT determined if the values/attributes were unique, rare, or exemplary within the state of Montana.

The status of each stream was documented in the potential eligibility spreadsheet. This included streams with no known ORVs, streams that might have an ORV, and those streams that do possess outstandingly remarkable values.

The process also included review of rivers recommended as eligible in the Montanan's for Healthy Rivers Eligibility Report. Potential ORVs for each of these streams has been documented based on the eligibility criteria established by the IDT. Based on application of the eligibility criteria, the team found some of the recommended streams in the Montanan's for Healthy Rivers Eligibility Report not to be eligible.

The results of the course filter first look during the April 2015 wild and scenic river workshop resulted in approximately 73 streams remaining on the list of streams to closely examine to confirm or determine that they have outstandingly remarkable values (see table xx). Out of these streams, 14 of the streams were previously identified as eligible and 59 additional rivers were identified as having potential ORVs.

Further review of the 73 streams mentioned above was conducted during meetings in May 2015. ID team members coordinated with forest and regional office staff prior to the meeting regarding any questions or clarification on resource information directly related to potential ORVs. That information was used to change a stream that may have had an ORV to yes or no for the presence of an ORV and in specific resource areas. This information was updated in the wild and scenic river stream table and the revised list had 44 streams with potential ORVs and 5 streams that need further review (see appendix A- Tabs: S4b Interim List A (60) 050815 and S4c,d Interim List B (45) 052215).

Several smaller meetings with individual resource specialists occurred in the months of June and July 2015. Using maps and additional data on hand, these specialists further refined the list of potentially eligible streams. The resulting list consisted of 40 streams within the HLC NF planning area that were found to have ORVs and were considered potentially eligible for future wild and scenic river designation. The results of this work are documented in appendix A (Tab-S4d, 5, 6 Final List (40) 083115) and B.

The public comment and review period from November 2015 through January 15, 2016, highlighted a number of additional streams and ORVs that the public felt should be considered. These were reviewed by the IDT in an April 2016 meeting, resulting in the addition of 6 streams/rivers, the removal of one stream, and changes to the classification of several streams. This gave the study a sum total of 45 eligible streams/rivers.

## Step 5: Classification of eligible streams

Once a watercourse has been determined eligible, the level of development needs to be reviewed to determine which preliminary classification category (ies) apply to the entire stream/river or segments of the stream/river. The categories for consideration under the WSRA are: wild, scenic, or recreational.

Potential classification should be based on the situation existing at the time of the study. It should not anticipate expected development or other changes along the river corridor; this is an aspect of evaluating suitability. A variety of things to consider regarding classification include livestock grazing, past management activities (such as timber harvesting, mining developments, or exploration and development of oil and gas), special lands uses (such as utility corridors and other special use permits), and any types of development along the shore of the river.

The 1964 Wild and Scenic Rivers Act states that “It is important to understand each criterion, but it is more important to understand their collective intent. Each river segment and its immediate environment should be considered as a unit. The basis for classification is the degree of naturalness, or stated negatively, the degree of evidence of man’s activity in the river area. The most natural rivers will be classified wild; those somewhat less natural, scenic, and those least natural, recreational... Although each classification permits certain existing development, the criteria do not imply that additional inconsistent development is permitted in the future.”

Core team members evaluated the potentially eligible streams/rivers for preliminary classification. The preliminary classification is described in the river description form for all potentially eligible rivers (see the summary section starting on page 19). The other team members and the leadership team reviewed the preliminary classification information and provided feedback. Additionally, the public provided feedback



to some of the preliminary classifications. The following factors were used to determine classification of river segments.

**Table 3. Classification criteria for wild, scenic, and recreational rivers**

ATTRIBUTE	WILD	SCENIC	RECREATIONAL
Water Resource Development	Free of impoundment.	Free of impoundment.	Some existing impoundment or diversion.  The existence of low dams, diversions, or other modifications of the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance.
Shoreline Development	Essentially primitive. Little or no evidence of human activity.  The presence of a few inconspicuous structures, particularly those of historic or cultural value, is acceptable.  A limited amount of domestic livestock grazing or hay production is acceptable.  Little or no evidence of past timber harvest. No ongoing timber harvest.	Largely primitive and undeveloped. No substantial evidence of human activity.  The presence of small communities or dispersed dwellings or farm structures is acceptable.  The presence of grazing, hay production, or row crops is acceptable.  Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.	Some development. Substantial evidence of human activity.  The presence of extensive residential development and a few commercial structures is acceptable.  Lands may have been developed for the full range of agricultural and forestry uses.  May show evidence of past and ongoing timber harvest.
Accessibility	Generally inaccessible except by trail.  No roads, railroads, or other provision for vehicular travel within the river area. A few existing roads leading to the boundary of the area are acceptable.	Accessible in places by road.  Roads may occasionally reach or bridge the river. The existence of short stretches of conspicuous or longer stretches of inconspicuous roads or railroads is acceptable.	Readily accessible by road or railroad.  The existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable.
Water Quality	Meets, or exceeds criteria, or federally approved State standards for aesthetics, for propagation of fish, and wildlife normally adapted to the habitat of the river, and for primary contact recreation (swimming) except where exceeded by natural conditions.	No criteria are prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States are made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists, or is being developed in compliance with applicable Federal and State laws.	

Eligible rivers may be divided into segments having differing classifications when the levels of human use and activity create different degrees of development within the study area. In cases where a river has one or more classifications, each river segment identified should be of sufficient length to warrant its own unique management. Regarding segment length; FSH 1909.12 Chapter 80.62 states that, “there is no minimum length of a segment, but segment length should be sufficient to enable protection of the outstandingly remarkable values if the area were managed, apart from other segments, as a wild, scenic, or recreational river”.

A number of initial river classifications were changed as a result of additional field verification and public comment and review. Classification of the individual river segments for the 2015 eligibility study are described in the summary section starting on page 13. River data, description tables, and maps are located below in the Eligible Wild and Scenic River Description Tables and Maps section starting on page 19.

## Step 6: Develop management direction to be included in the proposed action

Rivers determined to be eligible within the national system must have certain interim protection measures. These protection measures apply until a decision is made of the future use of the river and the adjacent lands through an act of Congress or a determination that the river is not suitable. Along with the interim protective measures additional statutory, regulatory, or policy requirements may apply if the study river is located within a wilderness area or other designated area. In case of conflict between the provisions of the Wilderness Act and FSH 1909.12 Chapter 80 the more restrictive provisions shall apply.

The 2012 Planning Rule provides direction for the interim management of Forest Service identified eligible rivers/streams. This can be found in 36 CFR 219.10 (b, v).

(b) The plan must provide plan components, including standards and guidelines, to provide for:

(v) Protection of designed wild and scenic rivers as well as management of rivers found to be eligible or determined to be suitable for the National Wild and Scenic River system to protect the values that provide the basis for their suitability for inclusion in the system.

Site-specific projects and activities on National Forest System lands within eligible corridors may be authorized only where the project and activities are consistent with the following:

- The free-flowing character of the identified river is not adversely modified by the construction or development of stream impoundments, diversions, or other water resources projects.
- Outstandingly remarkable values of the identified river are protected.
- Classification of an eligible river/stream on National Forest System lands must be maintained as inventoried (eligible) unless a suitability study is completed that recommends management other than the preliminary classification.

The following protection measures apply to interim management of rivers the Forest Service has identified as eligible. As mentioned above, these protective measures apply to the future use of the river and adjacent lands until they are changed through an act of Congress or a change in eligibility through a suitability study conducted in the future. The following table describes management activities and protection measures that apply to eligible wild, scenic, or recreational rivers.

Agency identified study river protection continues unless a river is determined not suitable for designation.

**Table 4. Protection measures for eligible wild, scenic, or recreational rivers**

Project/Activity	Interim Protective Measures		
	WILD	SCENIC	RECREATIONAL
<b>Water Resource Projects</b> Dams Diversions Flood control Activities that affect free-flow	<b>Wild, Scenic, and Recreational:</b> Water resource projects on eligible rivers shall be analyzed as to their effect on a rivers free-flow, water quality, and identified ORV, with adverse effects to be prevented to the extent of the existing agency authority (such as special use authority).		
<b>Hydroelectric Power Facilities</b>	<b>Wild, Scenic, and Recreational:</b> Forest Service-identified eligible rivers are to be protected pending a suitability determination.		
<b>Minerals</b> Locatable  Leasable	<b>Wild, Scenic, and Recreational:</b> Subject to valid existing rights, existing or new mining activity on an identified eligible river are subject to regulations in 36 CFR Part 228 and must be conducted in a manner that minimizes surface disturbance, sedimentation, pollution, and visual impairment. Leases, licenses and permits under mineral leasing laws must include conditions necessary to protect the values of the river corridor that make it eligible for inclusion in the National System.		
<b>Minerals</b> Saleable	Wild Rivers  Disposal of saleable mineral material is prohibited.	Scenic and Recreational Disposal of saleable mineral material is allowed if the values of the river corridor that make it eligible for inclusion in the National System are protected.	
<b>Transportation System</b>	Roads and railroads are generally not compatible.  Prevent actions related to the road system that would preclude protection of the river as wild. Do not plan roads outside of the corridor that would adversely affect the wild classification.  New trail construction should generally be designed for non-motorized users.  New airfields may not be developed.	Roads and railroads may parallel the river for short segments or bridge the river if such construction protects the river values, including the free flowing character.  Bridge crossings and access points are allowed.  New trail construction and airfield development must be compatible and fully protect river ORVs.	Roads and railroads are permitted to parallel the river if such construction fully protects river ORVs, including the free flowing character.  Bridge crossings and access points are allowed.  New trail construction and airfield development must be compatible and fully protect river ORVs.
<b>Utility Proposals</b>	<b>Wild, Scenic, and Recreational:</b> New transmission lines such as gas lines, water lines, and similar linear features are not compatible with eligible wild and scenic rivers and are discouraged. Any portion of a utility proposal that has the potential to affect the river's free-flowing character must be evaluated as a water resources project.		
<b>Recreation Developments</b>	Major public use areas such as large campgrounds, interpretive centers, or administrative headquarters must be located outside of the	Public facilities, such as moderate sized campgrounds, simple sanitation and convenience facilities, public information centers, administration sites, and river access developments are allowed.	Recreation, administration, and river access facilities may be located in close proximity to the river. However, recreational classification does not require recreation development.

Project/Activity	Interim Protective Measures		
	WILD	SCENIC	RECREATIONAL
	<p>river corridor (typically 1/4 mile either side of river).</p> <p>Minimum facilities such as toilets and refuse containers may be provided to protect and enhance water quality and other river values.</p> <p>Facilities must be located and designed to harmonize with the primitive character, must protect river values, and must be screened from view to the extent possible.</p>	<p>Facilities must be located and designed to harmonize with the natural and cultural settings, must protect river values, including water quality, and must be screened from view to the extent possible.</p>	<p>Facilities must be located and designed to harmonize with the natural and cultural settings, must protect river values, including water quality, and must be screened from view to the extent possible.</p>
<b>Motorized Travel</b>	<p><b>Wild</b></p> <p>Motorized travel on land or water may be permitted but is generally not compatible. Where motorized travel is deemed necessary, uses should be carefully defined and impacts mitigated.</p>	<p><b>Scenic and Recreational:</b></p> <p>Motorized travel on land or water may be permitted, prohibited, or restricted to protect river ORVs.</p>	
<b>Wildlife and Fish Projects</b>	<p>Construction of minor structures and vegetation management to protect and enhance wildlife and fish habitat should harmonize with the area's primitive character and protect river ORVs.</p> <p>Proposed wildlife or fisheries restoration or enhancement projects that have potential to affect the rivers free-flowing character must be evaluated as a water resources project.</p>	<p>Construction of structures and vegetation management designed to protect and enhance wildlife and fish habitat should harmonize with the area's largely undeveloped character and protect river ORVs.</p> <p>Any portion of a wildlife or fisheries restoration or enhancement projects that have potential to affect the rivers free-flowing character must be evaluated as a water resources project.</p>	<p>Construction of structures and vegetation management designed to protect and enhance wildlife and fish habitat should fully protect river ORVs.</p> <p>Any portion of a wildlife or fisheries restoration or enhancement projects that have potential to affect the rivers free-flowing character must be evaluated as a water resources project.</p>
<b>Vegetation Management</b>	<p><b>Wild:</b></p> <p>Cutting of trees and other vegetation is not permitted except when needed in association with a primitive recreation experience, to protect users, or to protect identified ORVs.</p>	<p><b>Scenic and Recreational:</b></p> <p>A range of vegetation management and timber harvest practices are allowed, if these practices are designed to protect users, or protect, restore, or enhance the river environment, including the long-term scenic character.</p>	

Project/Activity	Interim Protective Measures		
	WILD	SCENIC	RECREATIONAL
<b>Domestic Livestock Grazing</b>	Domestic livestock grazing should be managed to protect ORVs.  Existing structures may be maintained.  New facilities may be developed so long as they maintain the ORVs and the area's primitive character.	Domestic livestock grazing should be managed to protect ORVs.  Existing structures may be maintained.  New facilities may be developed so long as they maintain the ORVs and the area's largely undeveloped character.	Domestic livestock grazing should be managed to protect ORVs.  Existing structures may be maintained.  New facilities may be developed so long as they maintain the ORVs for which the river was found eligible.

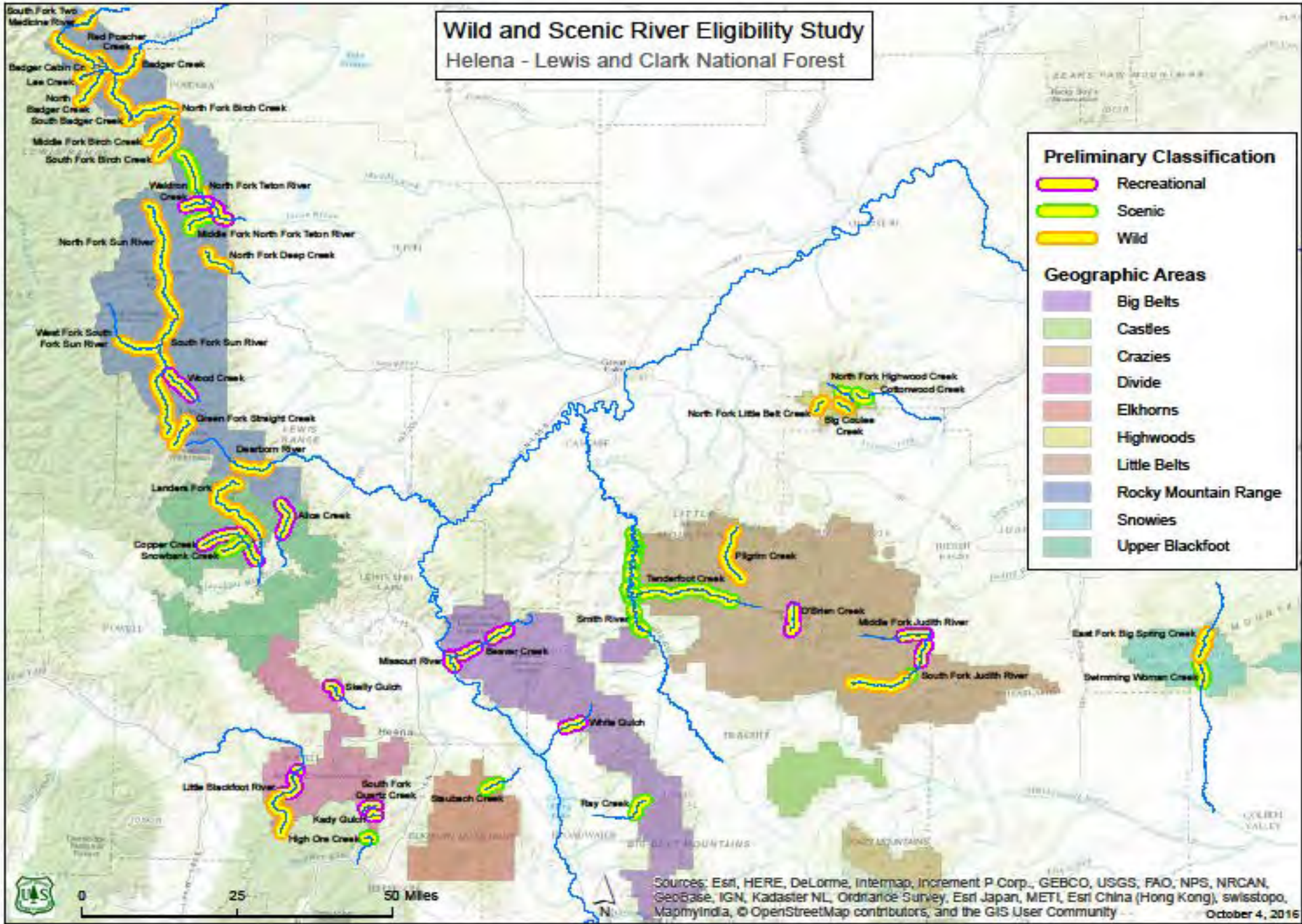
## Summary of Wild and Scenic Rivers Eligibility Study

As directed by the 2012 Planning Rule (36 CFR 219.12 Chapter 80), the HLC NF planning team developed and conducted a comprehensive inventory and evaluation to determine which rivers are eligible for inclusion in the wild and scenic rivers system on National Forest System lands. The team initiated the study process with 1,016 rivers/streams free-flowing and named streams. During the process, outstandingly remarkable values (ORVs) for each of the rivers were determined based on established evaluation criteria within a region of comparison. At the end of the study and public comment and review period, 45 rivers/streams were identified as eligible for inclusion. These rivers were then given a potential classification based on the amount of development present within the river corridor.

The following map displays the locations of the 45 river/streams within the GAs defined in the HLC NF planning area. Table 6 further describes each river, its length, its outstandingly remarkable value(s), and the potential classification for which it is being proposed as eligible. Following Table 5, the 45 eligible wild and scenic rivers are displayed by geographic area and include a descriptive table and map for each one.



Figure 1. Wild and Scenic Rivers Eligibility Study



**Table 5. Potential Eligible wild and scenic rivers by geographic area**

Potential River Name	Segment Description	Miles	Potential Classification	Outstanding Remarkable Values	Past Eligibility Notes
<b>Big Belts Geographic Area</b>					
Beaver Creek	<u>Segment 1:</u> From mouth to Bridge Creek, west of Nelson	5.5	Recreational	Recreation Geology Fish Cultural	Eligible in 1989 for Fish.
	<u>Segment 2:</u> From Sheep Gulch to Pike Creek	3.7	Recreational		
Whites Gulch	From FS boundary west to private boundary.	3.0	Recreational	Fish	
Missouri River	Hauser Dam to Cochran Gulch	2.2	Recreational	Recreation (Fishing) Geology Wildlife	Eligible in 1989 for Rec, Geology, Fish, Wildlife, and Natural.
Ray Creek	From FS boundary to headwaters.	3.4	Scenic	Fish	
<b>Divide Geographic Area</b>					
Little Blackfoot River	<u>Segment 1:</u> From mouth to private land boundary near Charter Oaks.	0.8	Recreational	Fish Cultural	Eligible in 1989 for Fish.
	<u>Segment 2:</u> From private land boundary south of Sawmill Creek to private land boundary north of Conner's Gulch.	5.0	Recreational		
	<u>Segment 3:</u> From private land boundary north of Kading Campground to the headwaters.	9.0	Wild		
High Ore Creek	From FS boundary to headwaters	1.1	Scenic	Fish	
Kady Gulch	From FS boundary to mining claim boundary	1.1	Recreational	Fish	
South Fork Quartz	From mouth to mining claim boundary	2.2	Recreational	Fish	
Skelly Gulch	From FS boundary to headwaters	2.5	Recreational	Fish	
<b>Elkhorns Geographic Area</b>					
Staubach Creek	From FS boundary to headwaters	2.4	Scenic	Fish	
<b>Highwoods Geographic Area</b>					
North Fork Highwood Creek	From fish barrier to headwaters	3.4	Scenic	Fish	
Big Coulee Creek	From natural cascade fish barrier to upper tributary fork	2.1	Wild	Fish	

Potential River Name	Segment Description	Miles	Potential Classification	Outstanding Remarkable Values	Past Eligibility Notes
Cottonwood Creek	From FS boundary to headwaters	2.5	Scenic	Fish	
North Fork Little Belt Creek	From FS boundary to headwaters	2.1	Wild	Fish	
<b>Little Belts Geographic Area</b>					
Pilgrim Creek	From cascade fish barrier to headwaters	10.7	Wild	Fish	
Middle Fork Judith River	From FS boundary to Big Arch Coulee	4.7	Recreational	Cultural	Eligible in 1989 for Cultural.
South Fork Judith River	<u>Segment 1:</u> From Bower Creek to Dry Pole Creek	3.6	Recreational		
	<u>Segment 2:</u> From Bluff Creek to Cabin Creek	1.3	Scenic	Fish Cultural	
	<u>Segment 3:</u> From Cabin Creek to headwaters	10.0	Wild		
Smith River (FS lands only)	The Smith River is comprised of 14 small segments of Forest Service lands interspersed with private lands. Only Forest Service lands are considered for eligibility. To view individual segments, see detail maps located in the summary.	17.1	Scenic	Scenic Recreation Geology Wildlife Cultural	Eligible in 1989 for Rec, Scenery, Geology, Fish, Wildlife and Cultural.
Tenderfoot Creek	From FS boundary to Iron Mines Creek	21.5	Scenic	Recreation Fish	Eligible in 1989 for Fish.
<b>Rocky Mountain Range Geographic Area</b>					
South Fork Two Medicine River	<u>Segment 1:</u> From FS boundary to Box Creek	3.4	Wild	Scenery Cultural	
	<u>Segment 2:</u> From private land boundary to headwaters	9.5	Wild		
Badger Creek	From FS boundary to confluence with North and South Badger Creeks	7.2	Wild	Cultural Scenery	
North Badger Creek	From confluence with main Badger and South Badger Creeks to headwaters	10.4	Wild	Fish Cultural	Eligible in 1989 for Fish.
South Badger Creek	From confluence with main Badger and North Badger Creek to headwaters	10.9	Wild	Cultural	
Lee Creek	From mouth to headwaters	4.6	Wild	Fish	
Badger Cabin Creek	From mouth to headwaters	3.2	Wild	Fish	



Potential River Name	Segment Description	Miles	Potential Classification	Outstanding Remarkable Values	Past Eligibility Notes
Red Poacher Creek	From confluence with North Badger Creek to headwaters	3.1	Wild	Fish	
North Fork Birch Creek	From FS boundary to headwaters	7.8	Wild	Cultural Scenery	Eligible in 1989 for Scenery and Geology.
Middle Fork Birch Creek	From confluence to the headwaters	5.2	Wild	Scenery Cultural	
South Fork Birch Creek	From FS boundary to headwaters	9.8	Wild	Scenery Recreation Fish Wildlife Cultural	
North Fork Deep Creek	From FS boundary to headwaters	5.3	Wild	Scenery	
North Fork Teton River	Segment 1: From FS Boundary to road crossing above Elko Campground (bottom of the box canyon)	5.5	Recreation	Recreation Scenery Fish	
	Segment 2: from road crossing to West Fork Campground (through the box canyon)	4.1	Wild		
	Segment 3: from West Fork Campground to headwaters	7.6	Scenic		
Middle Fork North Fork Teton River	From the confluence with North Fork Teton River to headwaters.	6.8	Scenic	Fish	
Waldron Creek	From the confluence with North Fork Teton River to headwaters	4.3	Recreational	Fish	
North Fork Sun River	From wilderness boundary to the headwaters	26.2	Wild	Scenery Recreation	
South Fork Sun River	From wilderness boundary to headwaters	26.2	Wild	Recreation Wildlife	
West Fork South Fork Sun River	From mouth to junction with Ahorn Creek	8.5	Wild	Recreation Wildlife	
Green Fork Straight Creek	From mouth to headwaters	5.9	Wild	Scenery Geology	Eligible in 1989 for Scenery and Geology.
Wood Creek	From below the dam on Wood Lake to the confluence with Straight Creek	7.1	Recreational	Wildlife	
Dearborn River	From FS boundary to Whitetail Creek	6.5	Wild	Scenery	Eligible in 1989 for Scenery.
<b>Snowies Geographic Area</b>					
Swimming Woman Creek	From FS boundary to headwaters	3.9	Scenic	Scenery Geology	

Potential River Name	Segment Description	Miles	Potential Classification	Outstanding Remarkable Values	Past Eligibility Notes
East Fork Big Spring Creek	From south end of Section 33 to headwaters	5.3	Wild	Fish	
<b>Upper Blackfoot Geographic Area</b>					
Alice Creek	From FS boundary to headwaters	7.0	Recreational	Cultural	
Copper Creek	From FS boundary to headwaters	14.0	Recreational	Fish	Eligible in 1989 for Fish.
Landers Fork	From FS boundary to headwaters	18.8	Wild	Fish	
Snowbank Creek	From confluence with Copper Creek to headwaters	4.4	Scenic	Fish	
<b>Total Miles of eligible sections of wild and scenic rivers</b>					<b>363.4 miles</b>

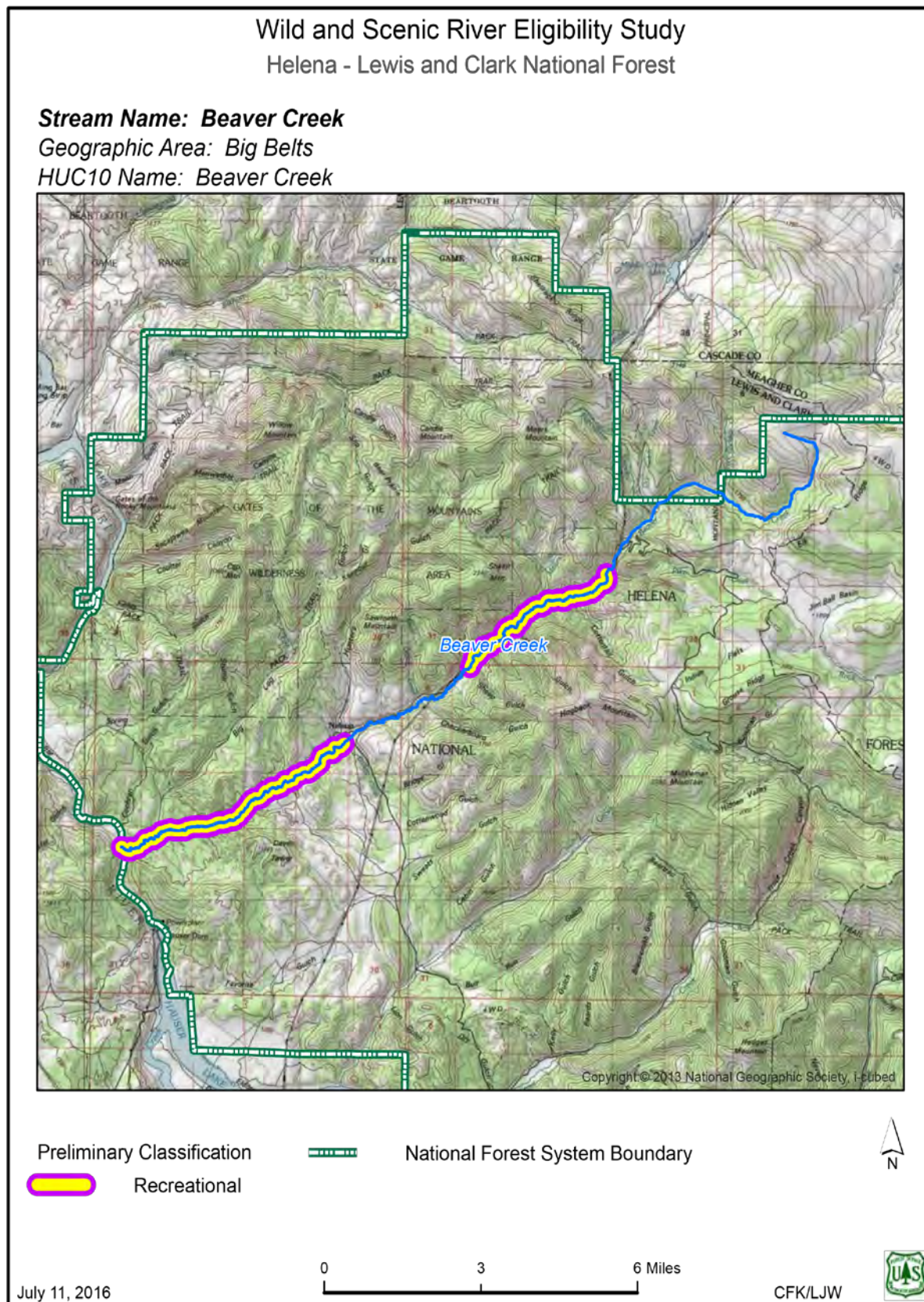
## Eligible Wild and Scenic Rivers Description Tables and Maps

Description tables and maps were developed for each of the 45 rivers identified as free flowing and possessing at least one outstandingly remarkable value. The eligible rivers and streams are organized by geographic area.

## Big Belts Geographic Area

### Beaver Creek

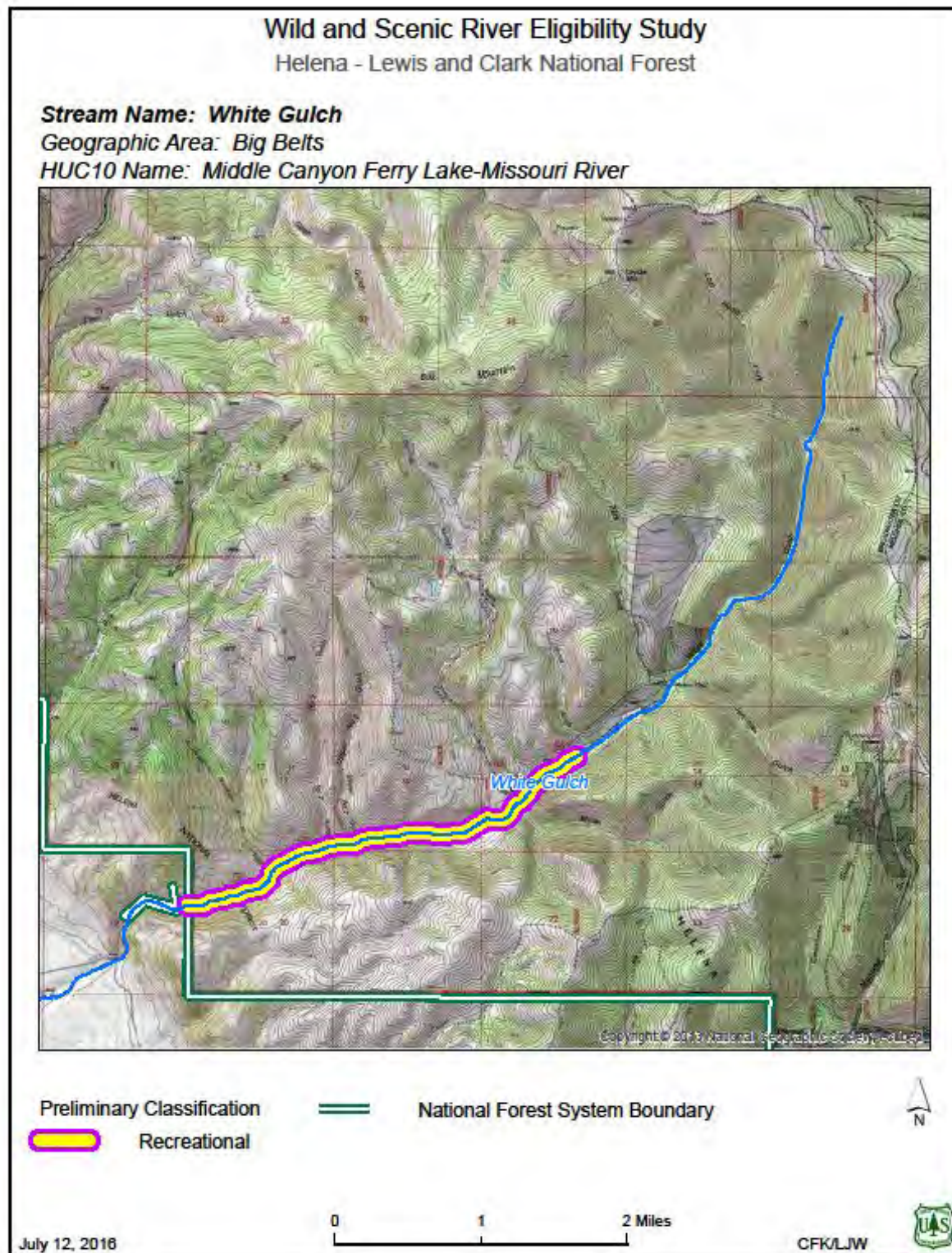
Beaver Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Recreation, Geology, Fish, Cultural
Area of Comparison	State of Montana
Eligible Segments	Segment 1: From mouth to Bridge Creek, west of Nelson Segment 2: From Sheep Gulch to Pike Creek
Miles of each segment	Segment 1: 5.5 miles Segment 2: 3.7 miles
Potential Classification	Segment 1: Recreational Segment 2: Recreational
Location	Geographic area: Big Belts HUC 10: Beaver Creek Beginning Point: T12N R2W Section 19
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	No ORV.
Recreation	Beaver Creek is a popular national fishing destination for Rainbow Trout. Recreation sport fishing occurs on the entire stream, including both segments, with over 10,000 out of state fishermen per year.
Geologic	The geology of Beaver Creek, in segment 2, is outstanding for geology because it shows intricately and complexly folded and faulted lodgepole limestone. This formation shows many classic over thrust faulting deformation features. The geology of segment 1 is also spectacular. Geology in segment 1 is of the Madison formation and offers a cross sectional view highlighted by the deeply dissected valley.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	There are high prehistoric site concentrations on segment 1 and there are potential sites in segment 2. These sites offer excellent examples of culture use of limestone geologic formations close to waterways.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



## Whites Gulch

Whites Gulch	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary west to the private land boundary.
Miles of each segment	3.0 miles
Potential Classification	Recreational
Location	Geographic area: Big Belts HUC 10: Middle Canyon Ferry Lake- Missouri River Beginning Point: T10N R2E Section 16
County(ies)	Broadwater
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	This stream has a pure westslope cutthroat trout population that is protected by two cascade fish barriers.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

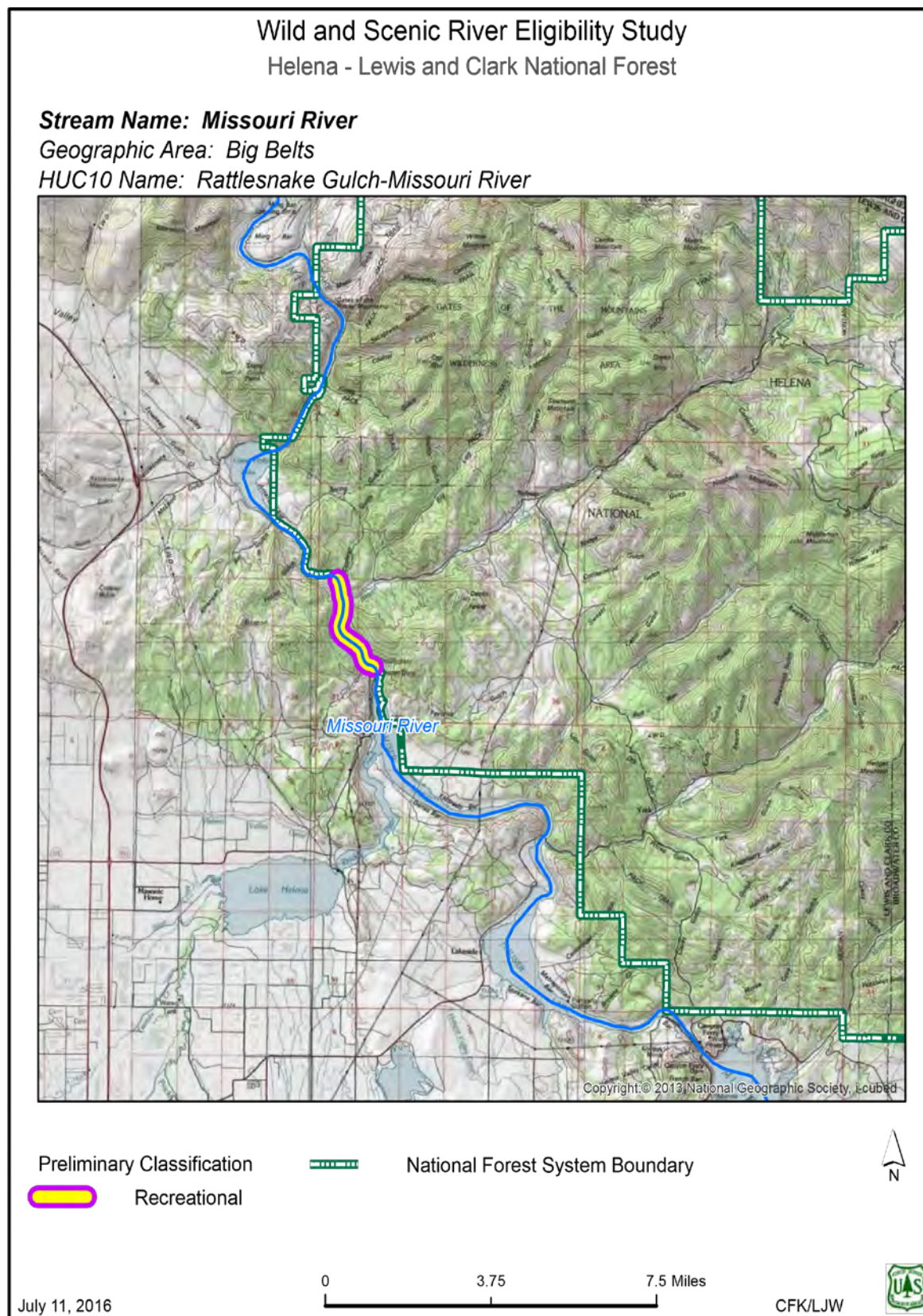




## Missouri River

Missouri River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Recreation, Geology, Wildlife
Area of Comparison	State of Montana
Eligible Segments	From Houser Dam to Cochran Gulch.
Miles of each segment	2.2 miles
Potential Classification	Recreational
Location	Geographic area: Big Belts HUC 10: Rattlesnake Gulch- Missouri River Beginning Point: T12N R2W Section 19
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	No ORV.
Recreation	Recreation sport fishing of rainbow trout is the ORV. The area receives over 10,000 out of state fishermen per year. Due to the proximity to the dams it is also an important tail-water fishery.
Geologic	The geology is of spectacular exposures of Madison limestone cliffs. Part of the Eldorado thrust fault.
Fisheries	No ORV.
Wildlife	Yes, bald eagle, golden eagle, peregrine falcon nesting, multiple wildlife values, remarkable to all be there together, diversity of raptor nesting, important as a group.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.
Notes	Existing Eligible

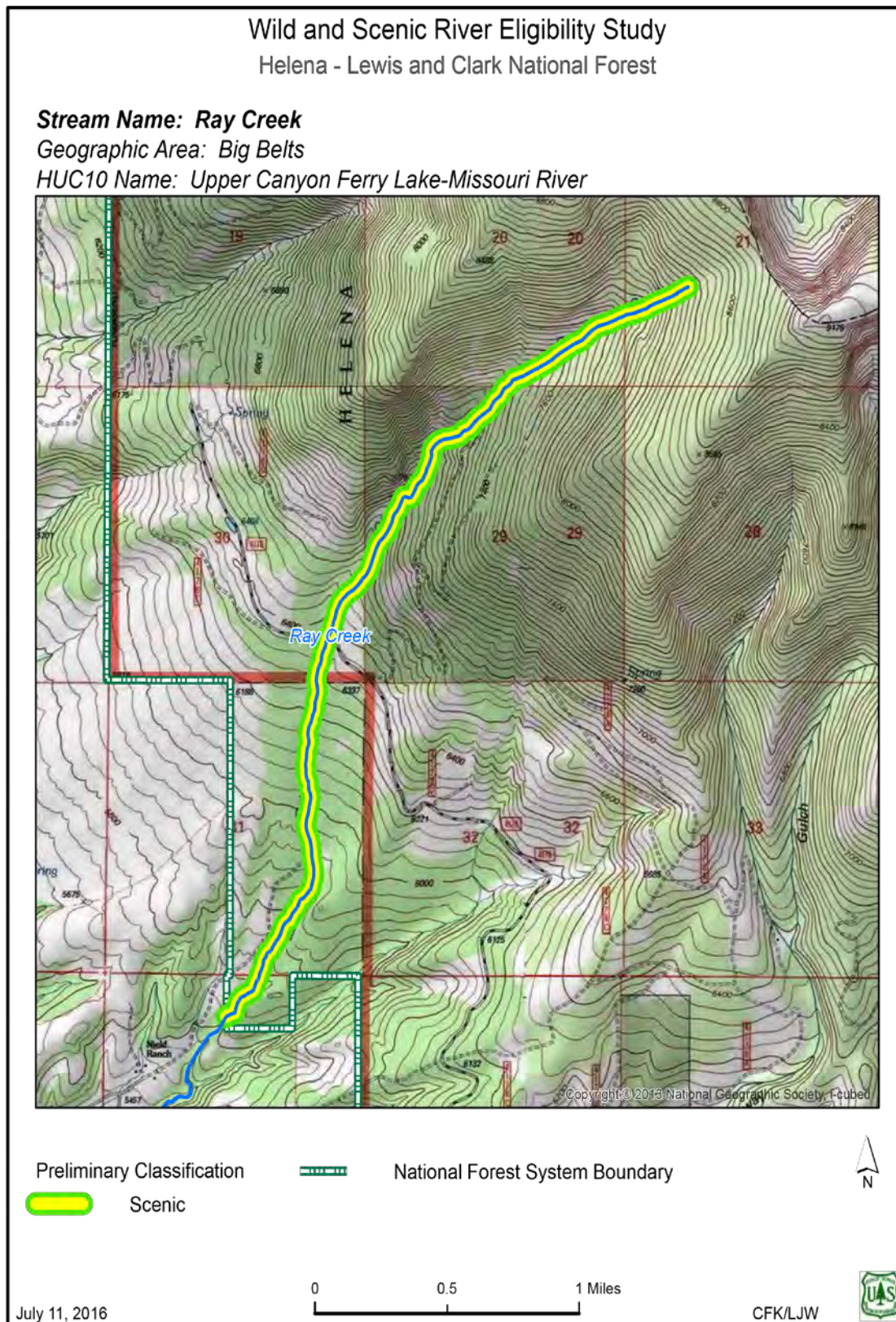




## Ray Creek

Ray Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to the headwaters.
Miles of each segment	3.4 miles
Potential Classification	Scenic
Location	Geographic area: Big Belts HUC 10: Upper Canyon- Ferry Lake- Missouri River Beginning Point: T8N R4E Section 30
County(ies)	Broadwater
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Pure westslope cutthroat trout in an Upper Missouri River HUC.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.





## Divide Geographic Area

### Little Blackfoot River

Little Blackfoot River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish Cultural
Area of Comparison	State of Montana
Eligible Segments	Segment 1: From mouth to private land boundary near Charter Oaks. Segment 2: From private land boundary south of Sawmill Creek to private land boundary north of Conner's Gulch. Segment 3: From private land boundary north of Kading Campground to the headwaters.
Miles of each segment	Segment 1: 0.8 miles Segment 2: 5.0 miles Segment 3: 9.0 miles
Potential Classification	Segment 1: Recreational Segment 2: Recreational Segment 3: Wild
Location	Geographic area: Divide HUC 10: Little Blackfoot River Beginning Point: T8N R7W Section 12
County(ies)	Powell
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Eligible for fisheries. Large reach with westslope cutthroat, but non-natives present. DNA sampling this field season. Headwaters still contains westslope cutthroat trout population.
Wildlife	No ORV.
Cultural	Charter Oak is an historic mine and mill located within segment 1. It is currently interpreted and on the National Register of Historic Places.
Botanical/ Natural	No ORV.
Natural Other	No ORV.
Notes	Research currently in progress on fish, existing eligible for bull trout, but the bull trout populations don't meet the ORV criteria now. Review again after the research is completed. <b>May go out in the field.</b>

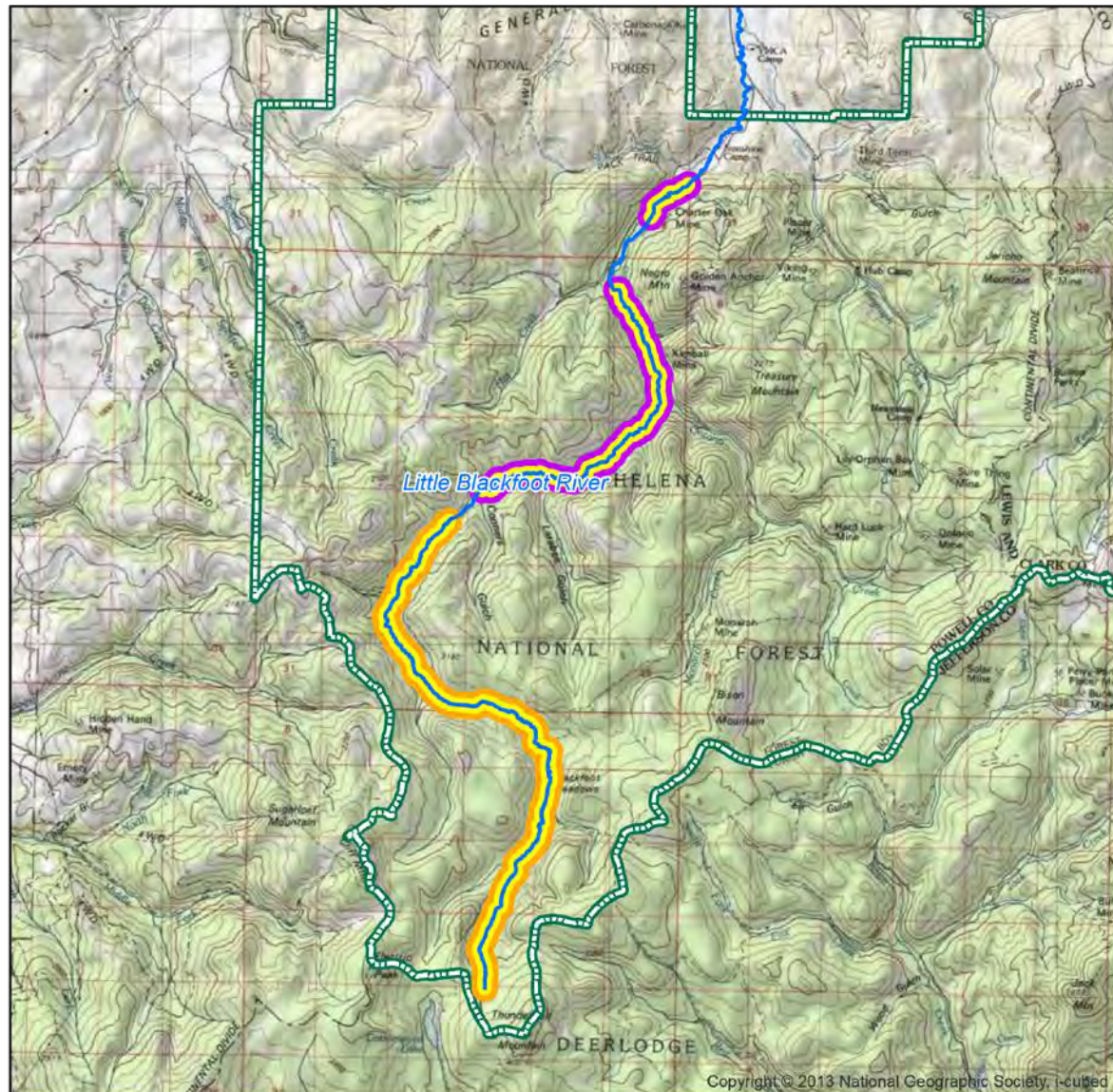


# Wild and Scenic River Eligibility Study Helena - Lewis and Clark National Forest

**Stream Name:** *Little Blackfoot River*

**Geographic Area:** Divide

**HUC10 Name:** *Little Blackfoot River Headwaters*



Preliminary Classification

- Recreational
- Wild



National Forest System Boundary



0 3 6 Miles

July 12, 2016

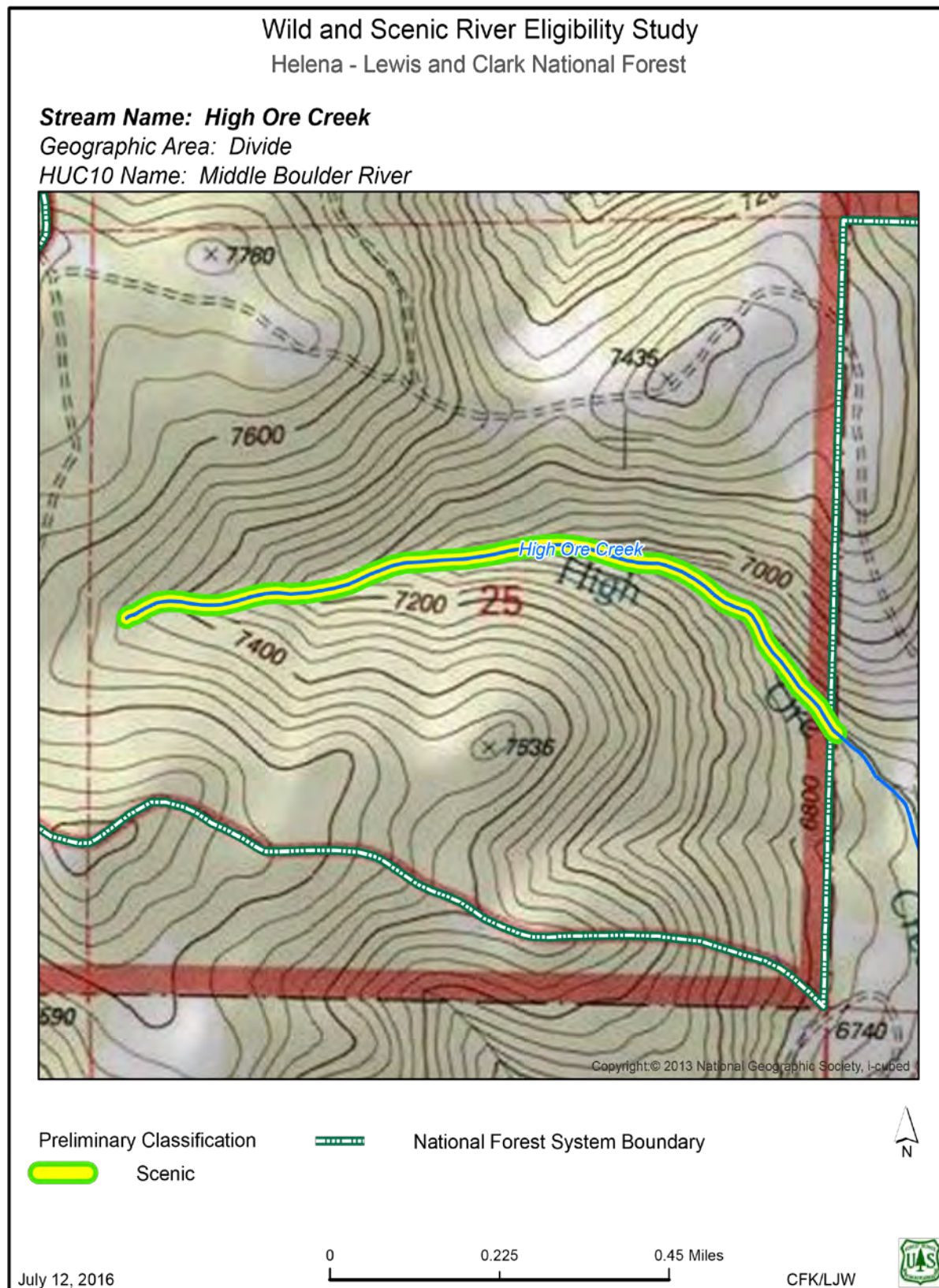
CFK/LJW



## High Ore Creek

High Ore Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters
Miles of each segment	1.1 miles
Potential Classification	Scenic
Location	Geographic area: Divide HUC 10: Middle Boulder River Beginning Point: T7N R5W Section 25
County(ies)	Jefferson
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Isolated genetically pure westslope cutthroat trout population.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

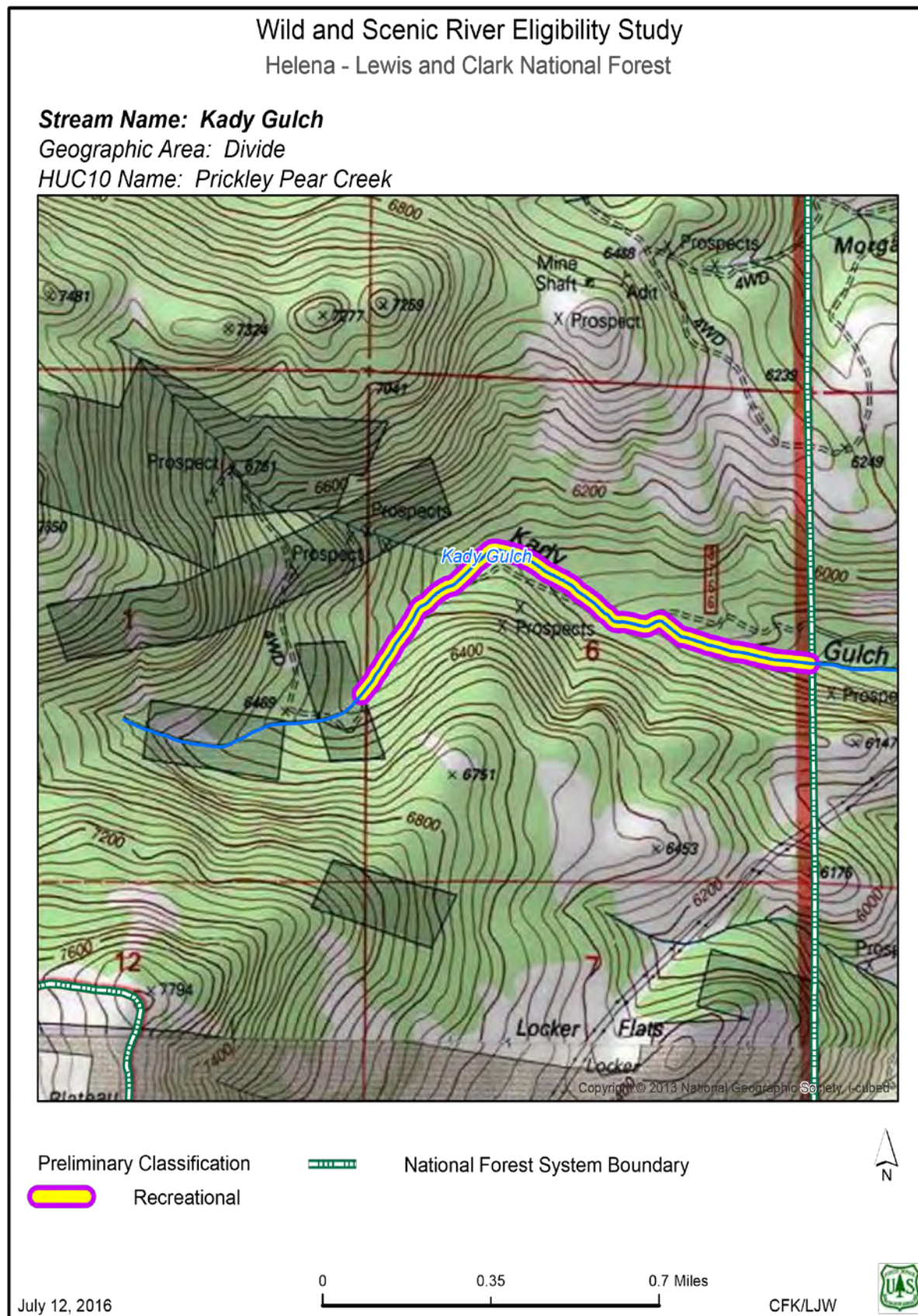




## Kady Gulch

Kady Gulch	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to the mining claim boundary.
Miles of each segment	1.1 miles
Potential Classification	Recreational
Location	Geographic area: Divide HUC 10: Prickly Pear Creek Beginning Point: T7N R4W Section 6
County(ies)	Jefferson
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

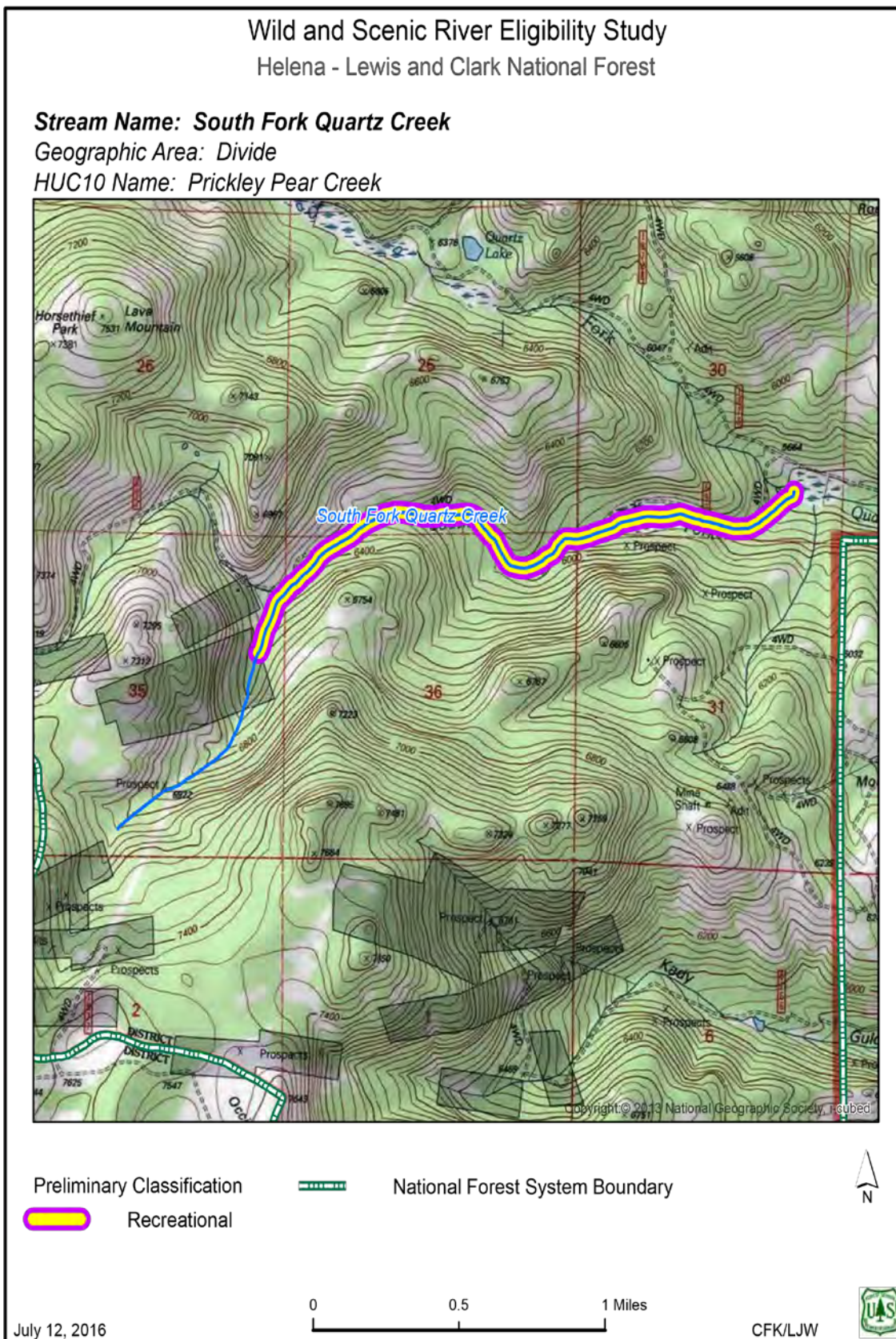




## South Fork Quartz

South Fork Quartz	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From mouth to the mining claim boundary.
Miles of each segment	2.2 miles
Potential Classification	Recreational
Location	Geographic area: Divide HUC 10: Prickly Pear Creek Beginning Point: T8N R4W Section 30
County(ies)	Jefferson
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

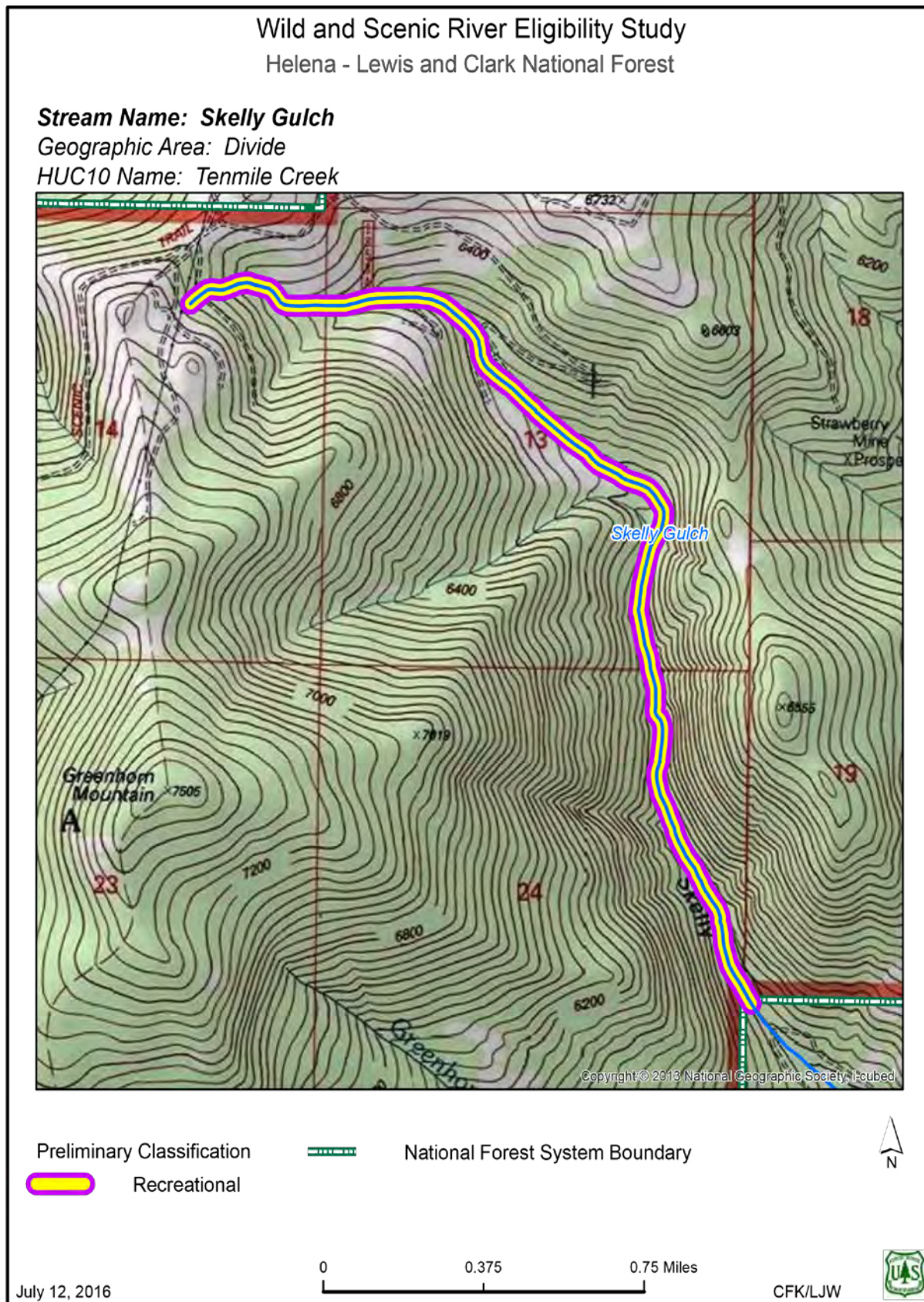




## Skelly Gulch

Skelly Gulch	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to the headwaters.
Miles of each segment	2.5 miles
Potential Classification	Recreational
Location	Geographic area: Divide HUC 10: Tenmile Creek Beginning Point: T11N R6W Section 24
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



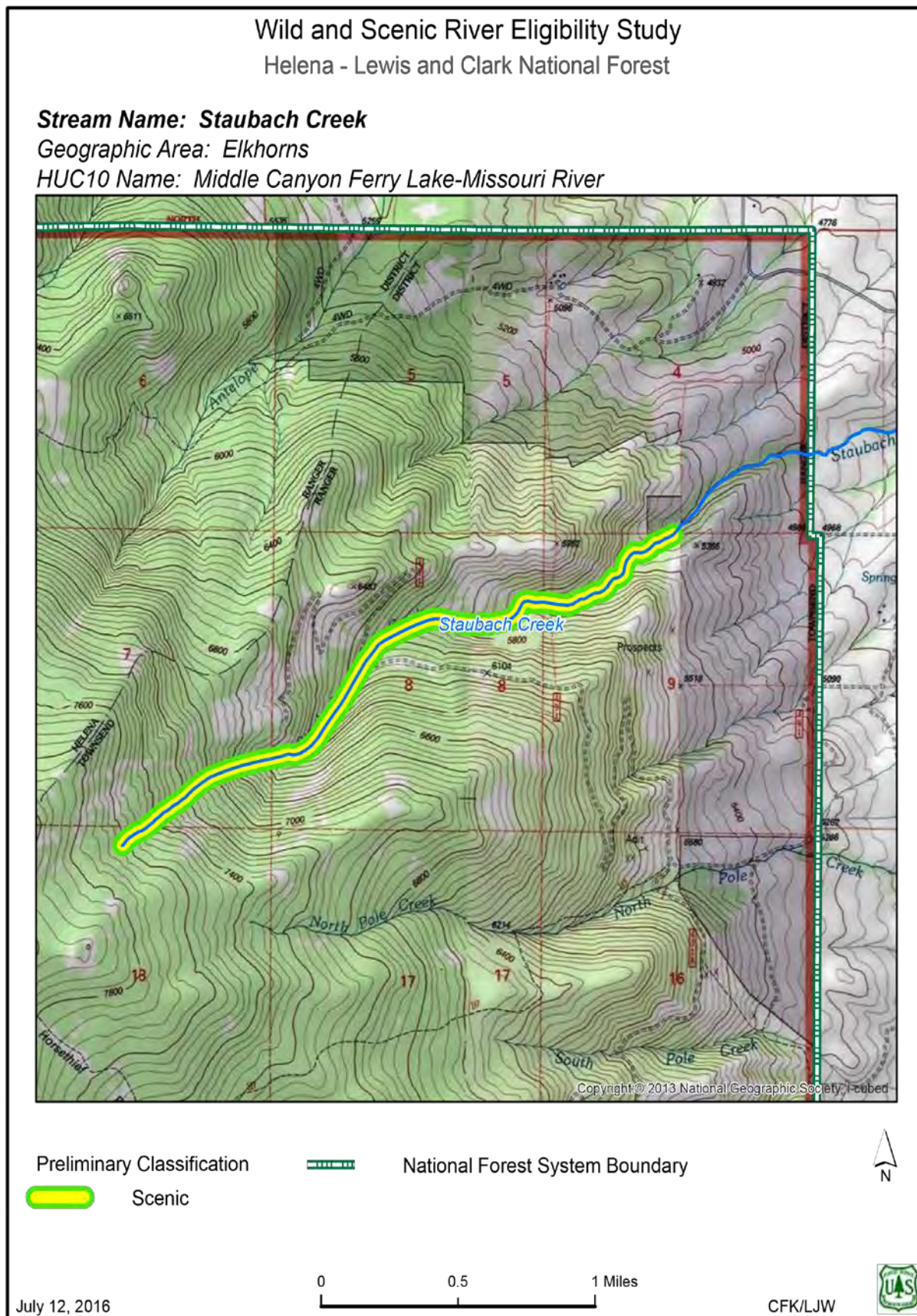


## Elkhorns Geographic Area

### Staubach Creek

Staubach Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters.
Miles of each segment	2.4 miles
Potential Classification	Scenic
Location	Geographic area: Elkhorns HUC 10: Middle Canyon Beginning Point: T8N R1W Section 9
County(ies)	Broadwater
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Isolated westslope cutthroat trout population with unique genetic makeup that is rare to this drainage basin
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.





## Highwoods Geographic Area

### North Fork Highwood Creek

North Fork Highwood Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From fish barrier to the headwaters.
Miles of each segment	3.4 miles
Potential Classification	Scenic
Location	Geographic area: Highwoods HUC 10: Highwood Creek Beginning Point: T20N R9E Section 20
County(ies)	Chouteau
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	One of two remaining pure westslope cutthroat trout populations in the Highwood Creek drainage system which represents the only known pure populations in this segment of the Upper Missouri River basin.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

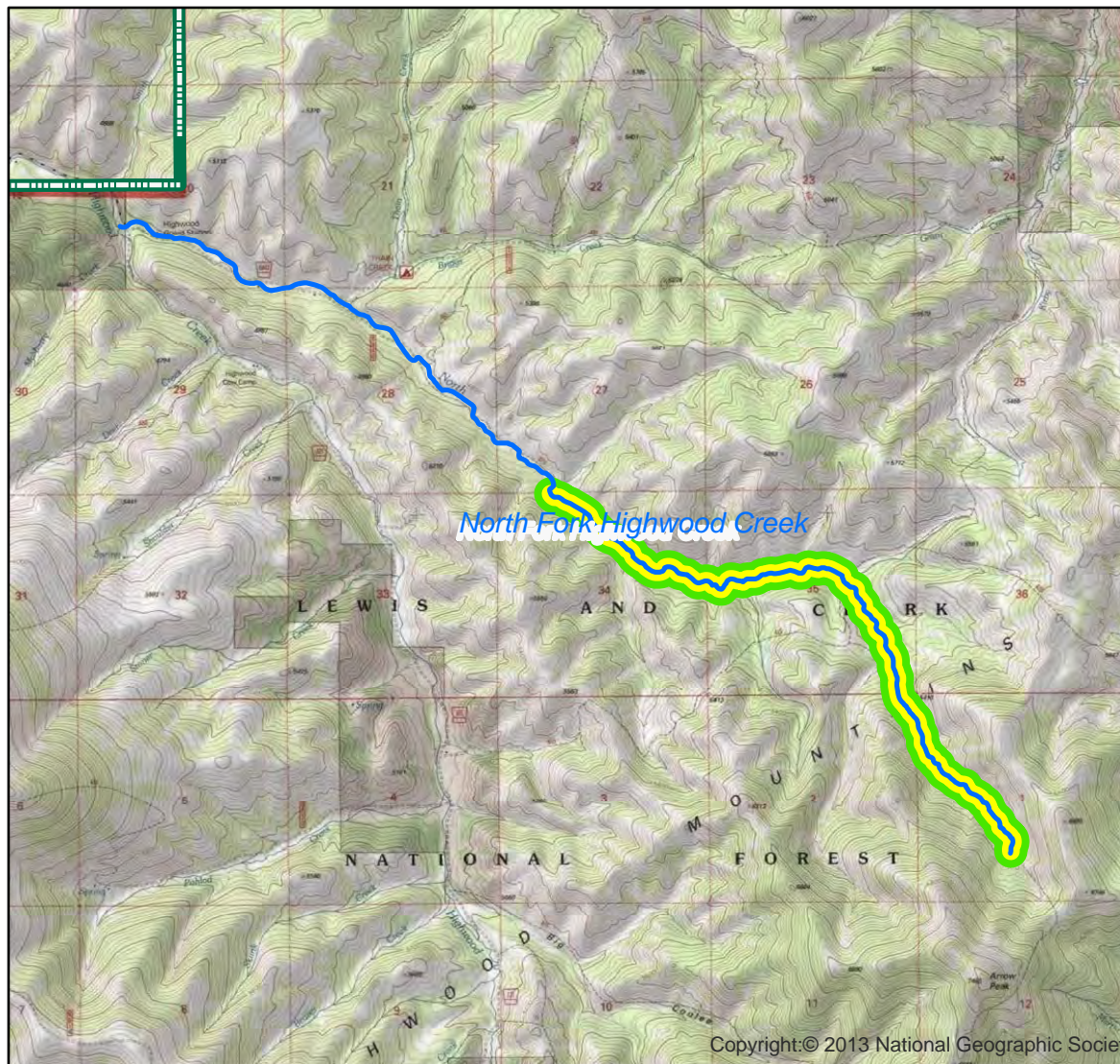


# Wild and Scenic River Eligibility Study Helena - Lewis and Clark National Forest

**Stream Name: North Fork Highwood Creek**

**Geographic Area: Highwoods**

**HUC10 Name: Highwood Creek**



Copyright:© 2013 National Geographic Society, i-cubed

Preliminary Classification

National Forest System Boundary



Scenic

0 1 2 Miles

CFK/LJW

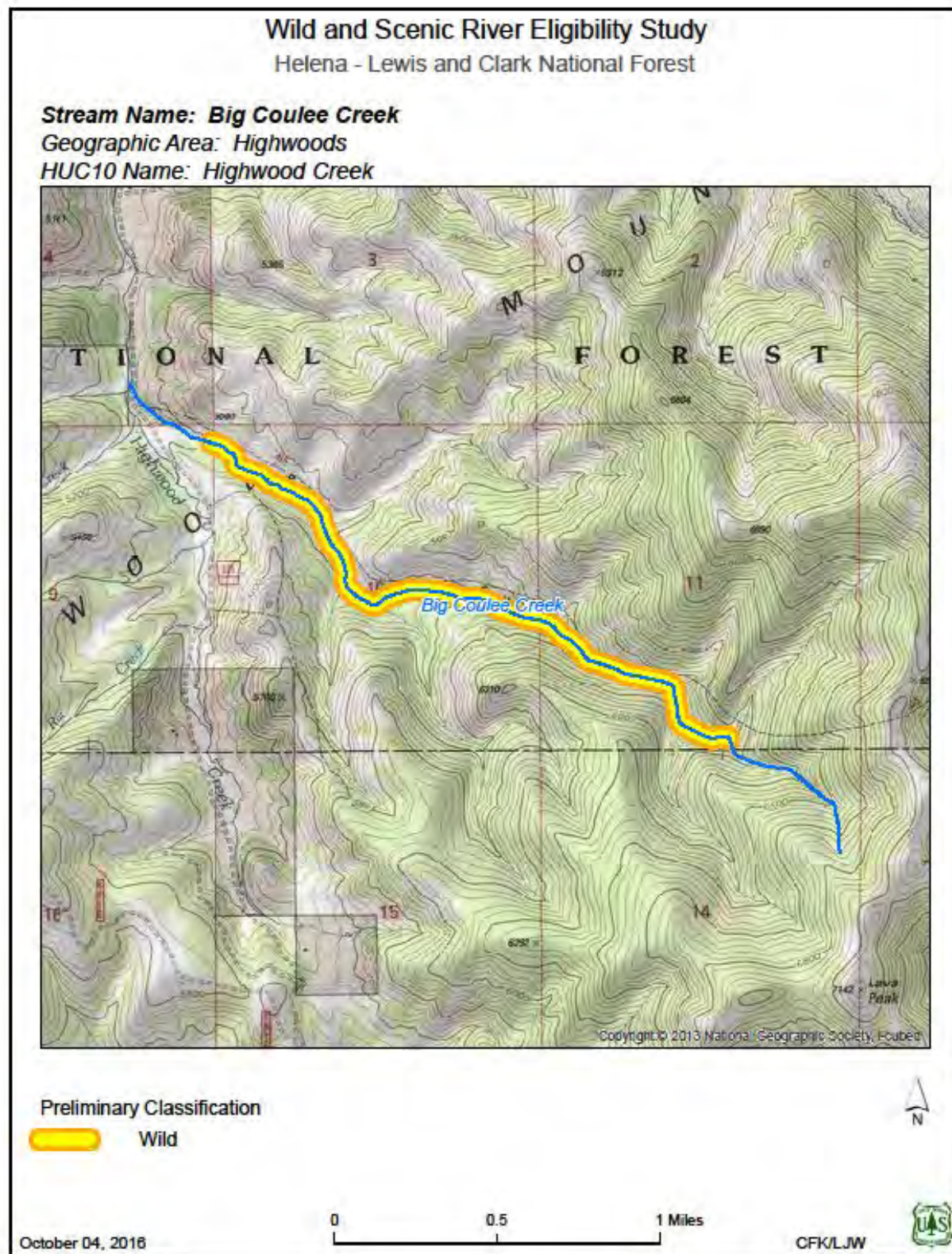


July 12, 2016

## Big Coulee Creek

Big Coulee Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From natural cascade fish barrier to upper tributary fork.
Miles of each segment	2.1 miles
Potential Classification	Wild
Location	Geographic area: Highwoods HUC 10: Highwood Creek Beginning Point: T 19N R9E Section 4
County(ies)	Chouteau
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	One of two remaining pure westslope cutthroat trout populations in the Highwood Creek drainage system which represents the only known pure populations in this segment of the Upper Missouri River basin.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

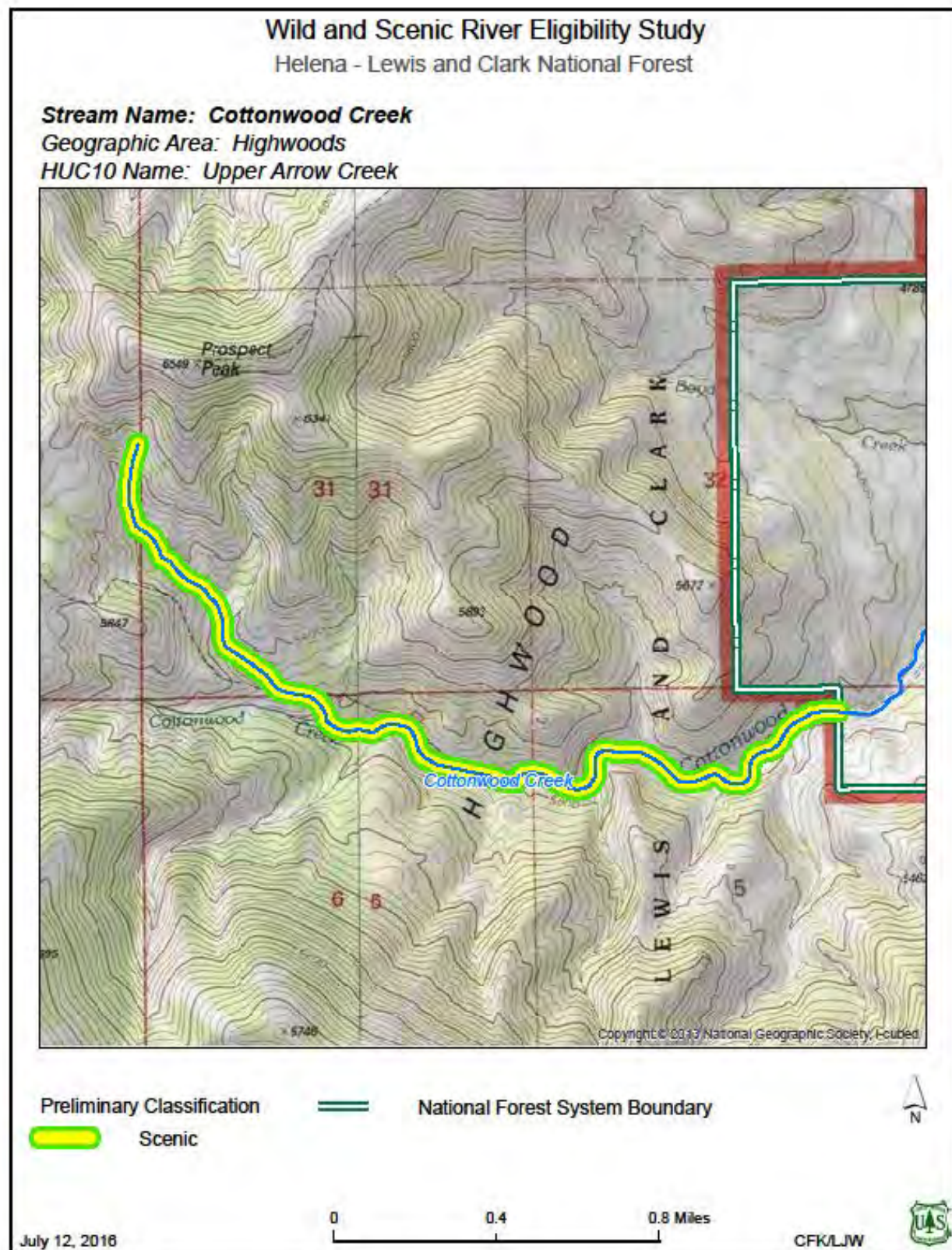




## Cottonwood Creek

Cottonwood Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From Forest Boundary to headwaters
Miles of each segment	2.5 miles
Potential Classification	Scenic
Location	Geographic area: Highwoods HUC 10: Upper Arrow Creek (1004010206) Beginning Point:
County(ies)	Chouteau County
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	The largest, most intact Westslope cutthroat trout population within the entire Arrow Creek river system.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

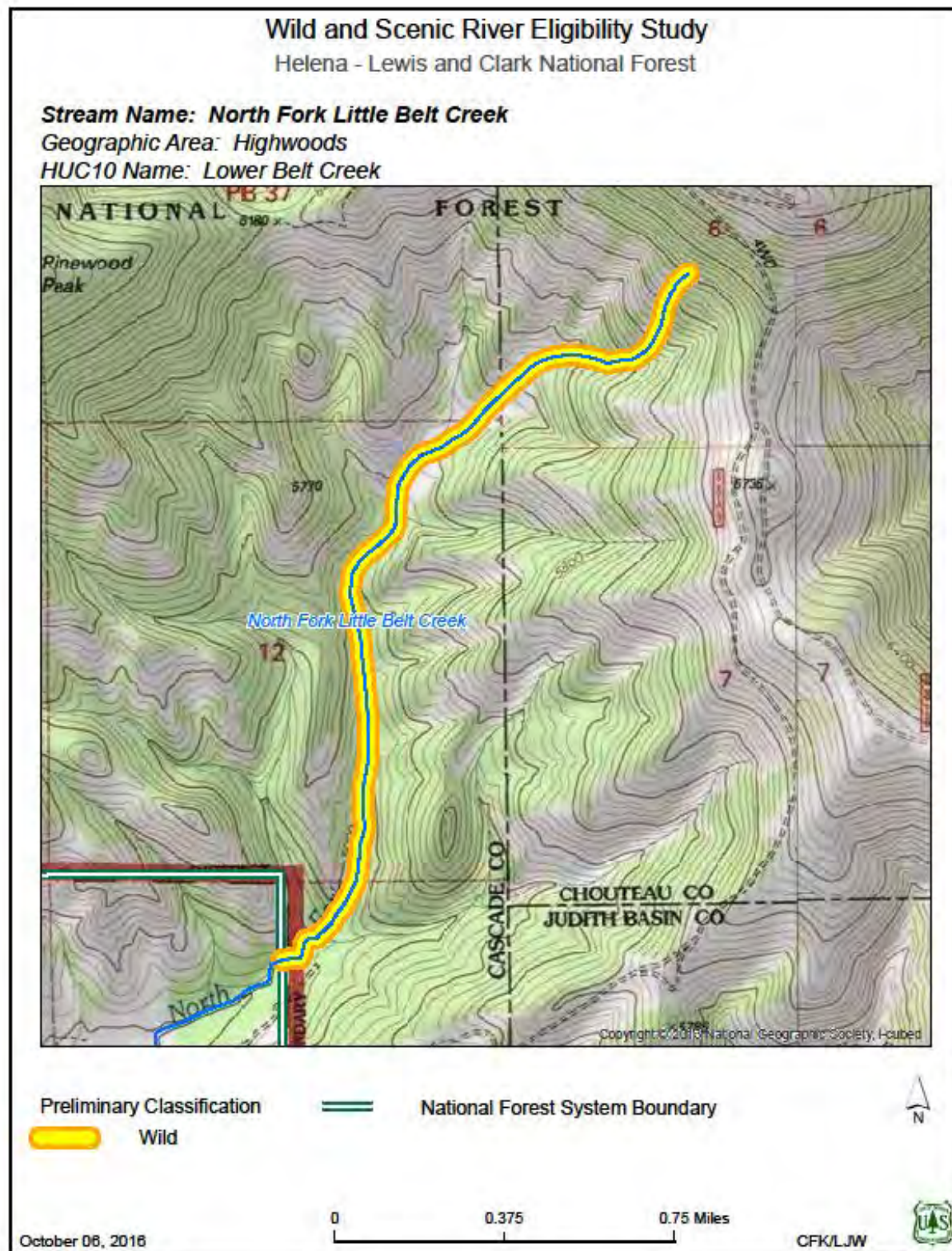




## North Fork Little Belt Creek

North Fork Little Belt Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS Boundary to headwaters
Miles of each segment	2.1 miles
Potential Classification	Wild
Location	Geographic area: Highwoods HUC 10: Lower Belt Creek (100301030) Beginning Point:
County(ies)	Cascade County
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	The most intact and secure Westslope cutthroat trout population within the Little Belt Creek and the lower portion of the Belt Creek drainage.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



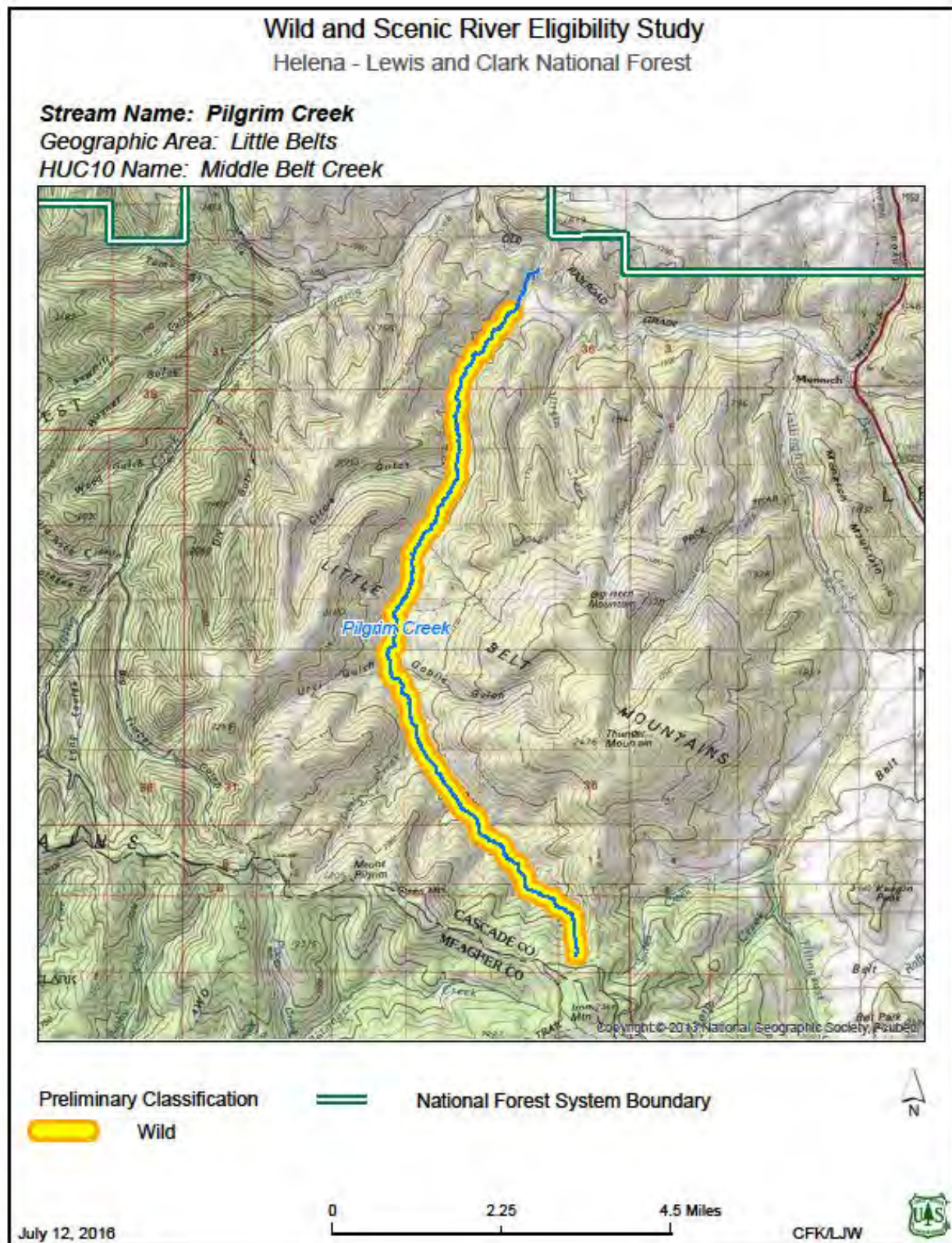




## Little Belt Mountains Geographic Area

### Pilgrim Creek

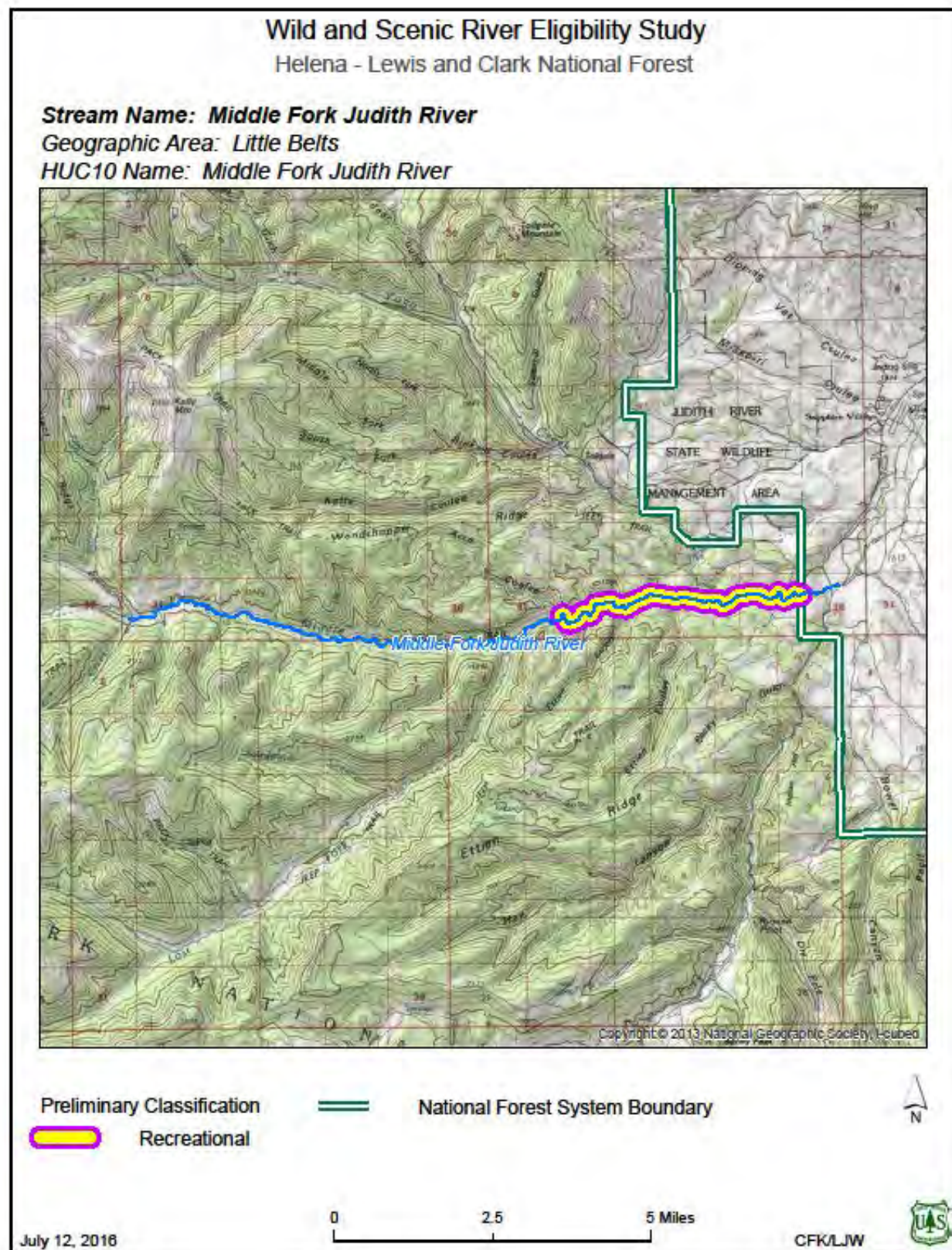
Pilgrim Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From cascade fish barrier (north end of Section 35) to headwaters.
Miles of each segment	10.7 miles
Potential Classification	Wild
Location	Geographic area: Little Belt Mountains HUC 10: Middle Belt Creek Beginning Point: T 16N R6E Section 26
County(ies)	Cascade
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Most productive and largest population of pure westslope cutthroat trout in this section of Belt Creek.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



## Middle Fork Judith River

Middle Fork Judith River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Cultural
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to Big Arch Coulee.
Miles of each segment	4.7 miles
Potential Classification	Recreational
Location	Geographic area: Little Belt Mountains HUC 10: Middle Fork Judith River Beginning Point: T13N R11E between Section 35 and 36
County(ies)	Judith Basin
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	Nine recorded historic properties within this stretch of river have been recommended eligible for listing in the National Register of Historic Places. The sites represent a site type which is no longer common, and form a complex of similar site-types. The sites possess the potential to yield significant information; therefore, presenting the opportunity to ask a variety of research questions. The Judith Guard Station is listed in the National Register of Historic Places and has the strong potential for public interpretation. All known historic properties possess an integral relationship to the Middle Fork Judith River.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

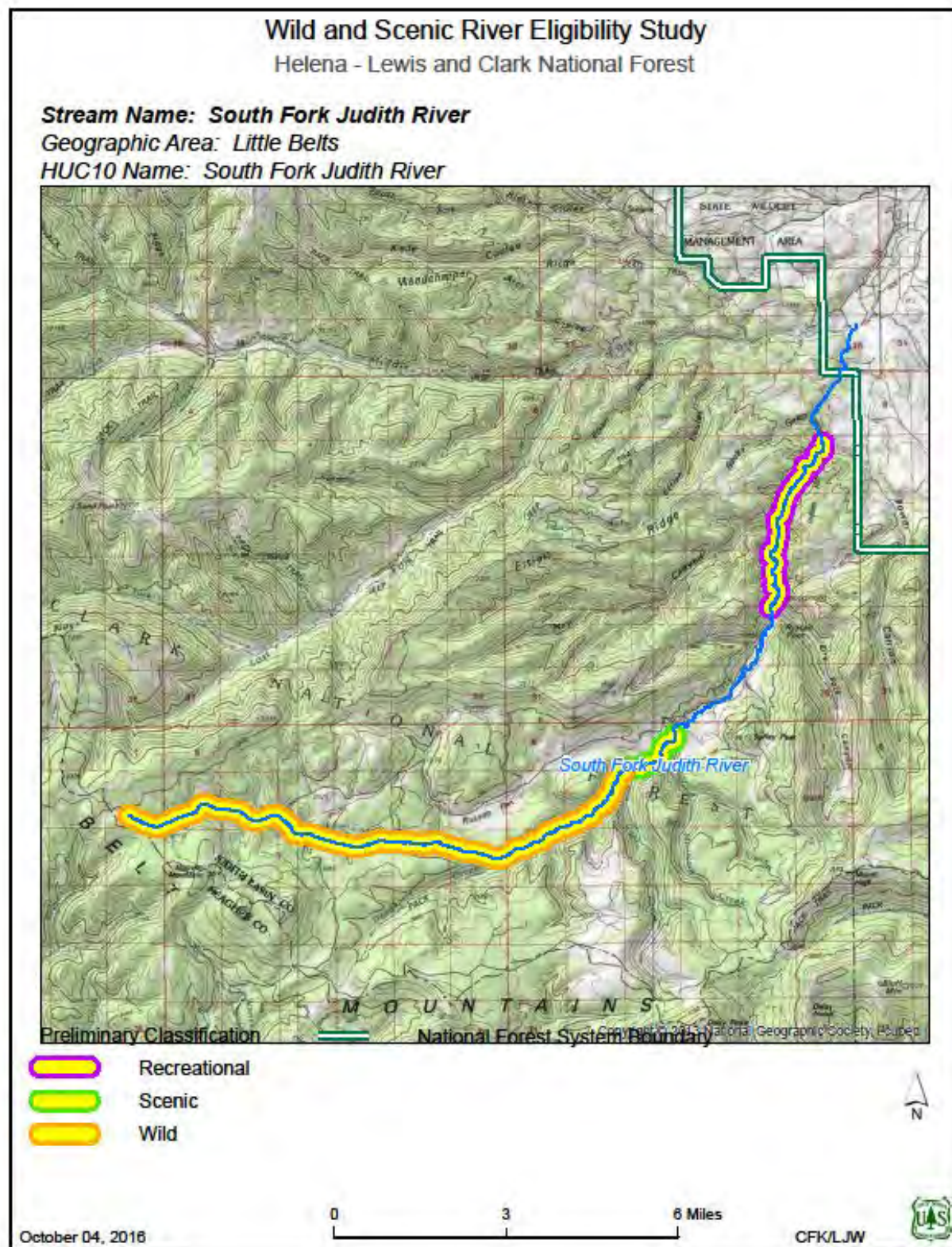




## South Fork Judith River

South Fork Judith River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish, Cultural
Area of Comparison	State of Montana
Eligible Segments	Segment 1 – From Bower Creek to Dry Pole Creek Segment 2 – From Bluff Creek to Cabin Creek Segment 3 – From Cabin Creek to headwaters
Miles of each segment	Segment 1: 3.6 miles Segment 2: 1.3 miles Segment 3: 10.0 miles
Potential Classification	Segment 1: Recreation Segment 2: Scenic Segment 3: Wild
Location	Geographic area: Little Belt Mountains HUC 10: South Fork Judith river Beginning Point: T13N R11E Section 36
County(ies)	Judith Basin
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Second longest, contiguous westslope cutthroat trout populations east of the Continental Divide for both segments.
Wildlife	No ORV.
Cultural	There is a high concentration of cultural sites along both Segments. These sites offer excellent examples of culture use of travel routes, river terraces, and occupation sites close to waterways. The cowboy artist CM Russell lived, worked and painted in this area.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



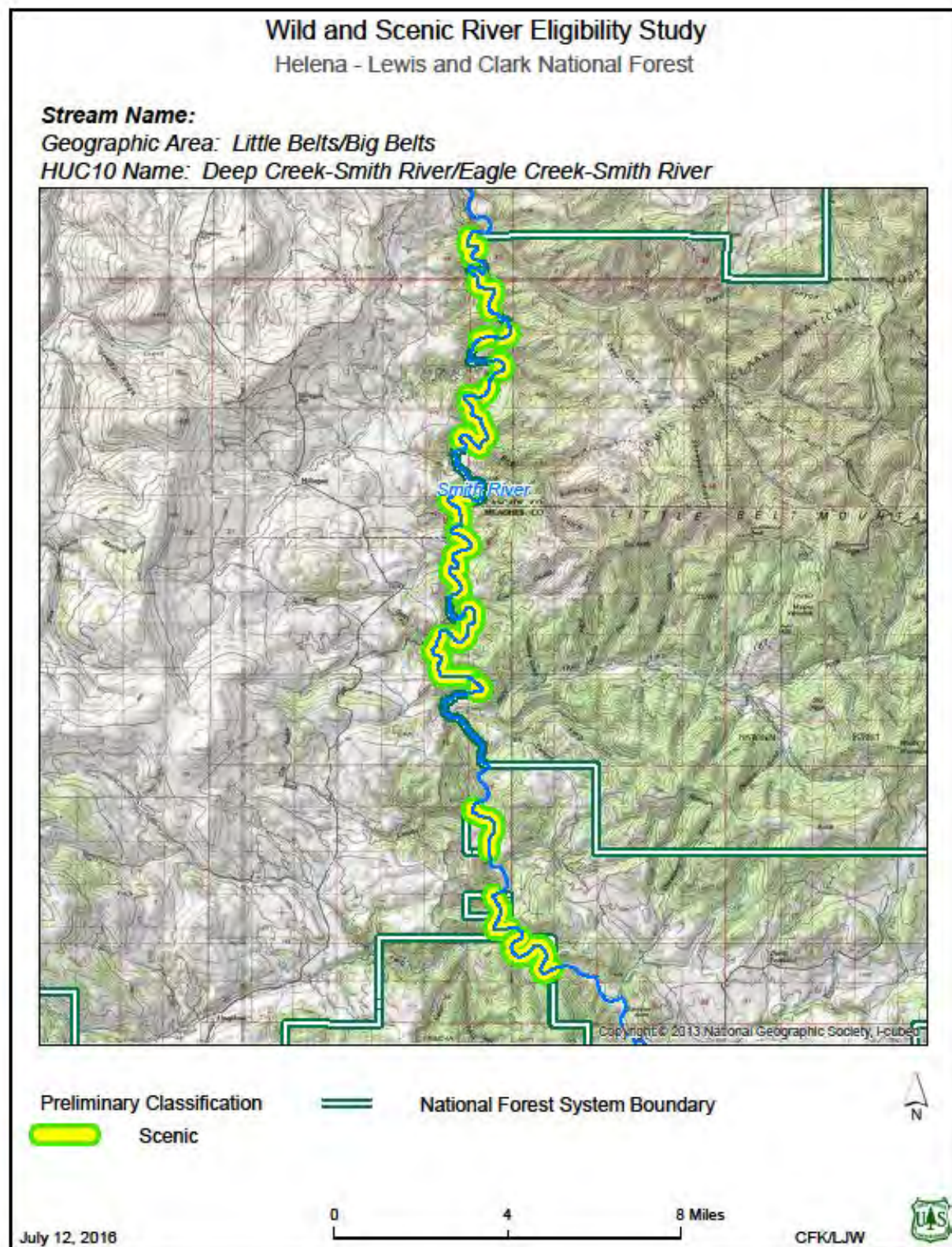


## Smith River

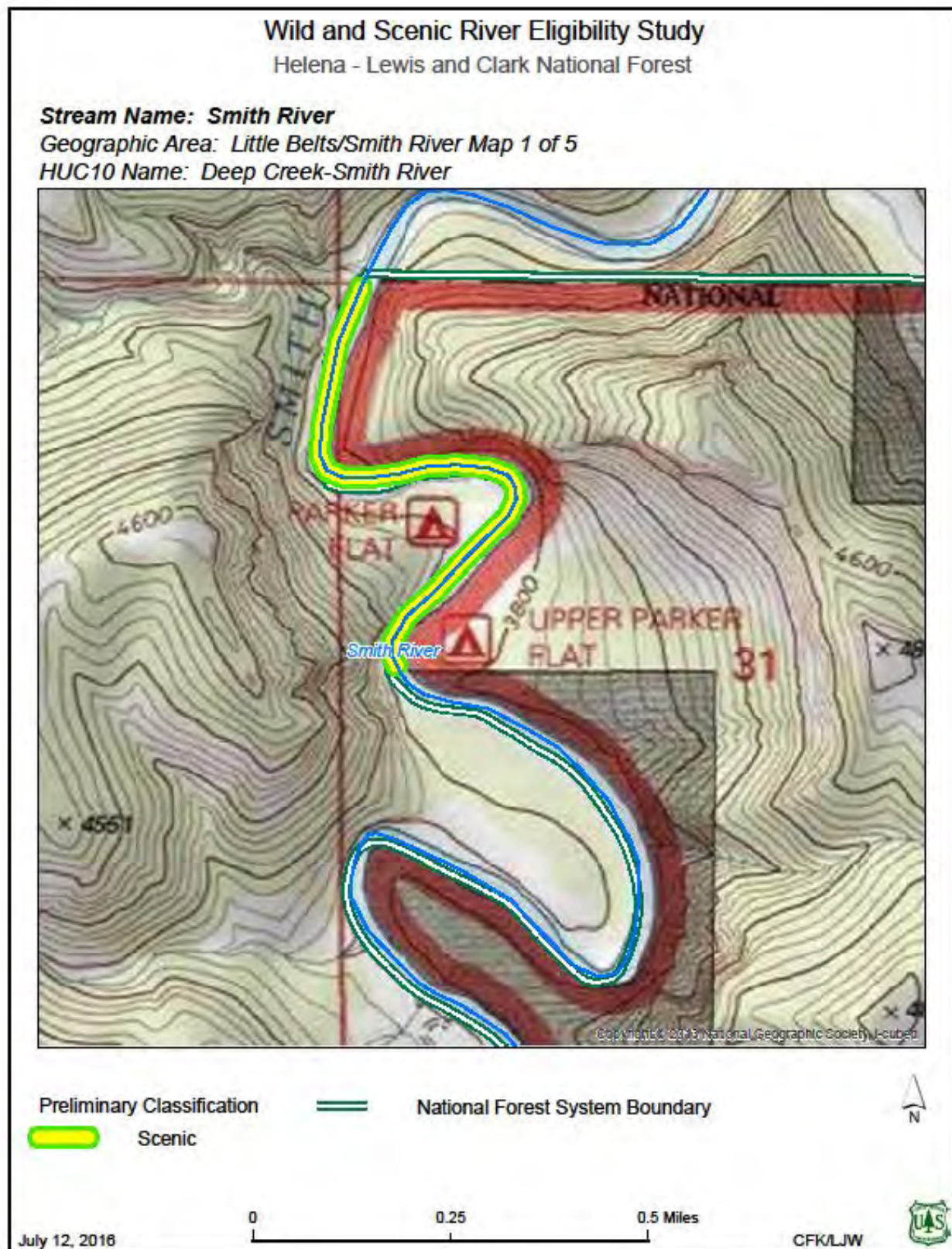
The following section includes a description table and 7 maps. The first map is a general vicinity map of the Smith River followed by 6 maps of all the segments of the river.

Smith River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Recreation, Geology, Wildlife, Cultural
Area of Comparison	State of Montana
Eligible Segments	The Smith River is comprised of 14 small segments of Forest Service System lands interspersed with private lands. Only Forest Service System lands are considered for eligibility. See the following maps for details.
Miles of eligible segments	Total segment mileage: 17.1 miles
Potential Classification	For all segments - Scenic
Location	Geographic area: Big Belts/Little Belts HUC 10: Eagle Creek- Smith River/ Deep Creek-Smith River Beginning Point: T16N R4E Section 31
County(ies)	Cascade/Meagher
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	Scenery is tied strongly to the outstanding geology and river setting in the river corridor.
Recreation	Important sport fisheries as people come from across the country to fish here. This is also an important river corridor for floating/camping. Montana FWP has a permit system to regulate numbers of floaters along the river corridor.
Geologic	Spectacular exposures of Madison limestone cliffs. The geology of the Smith River is remarkable because the river cuts "up section" across about 1 billion years of geologic deposition of sedimentary rocks, from the Precambrian Belt Series into the Paleozoic limestones and dolomites, into the Cretaceous shales. These rock sequences occur throughout much of western Montana and into Canada, however, few places are available to see the stratigraphic (layers) section intact. Not to mention the outstanding exposures of the Madison group provide the scenic grey cliffs that are pocked with alcoves and other karst features that are culturally significant.
Fisheries	No ORV.
Wildlife	Important diversity of raptor nesting. Important as a group.
Cultural	There is a high concentration of cultural sites along both segments. These sites offer excellent examples of culture use of limestone geologic formations highlighting the use of travel routes, river terraces, and occupation sites close to waterways.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

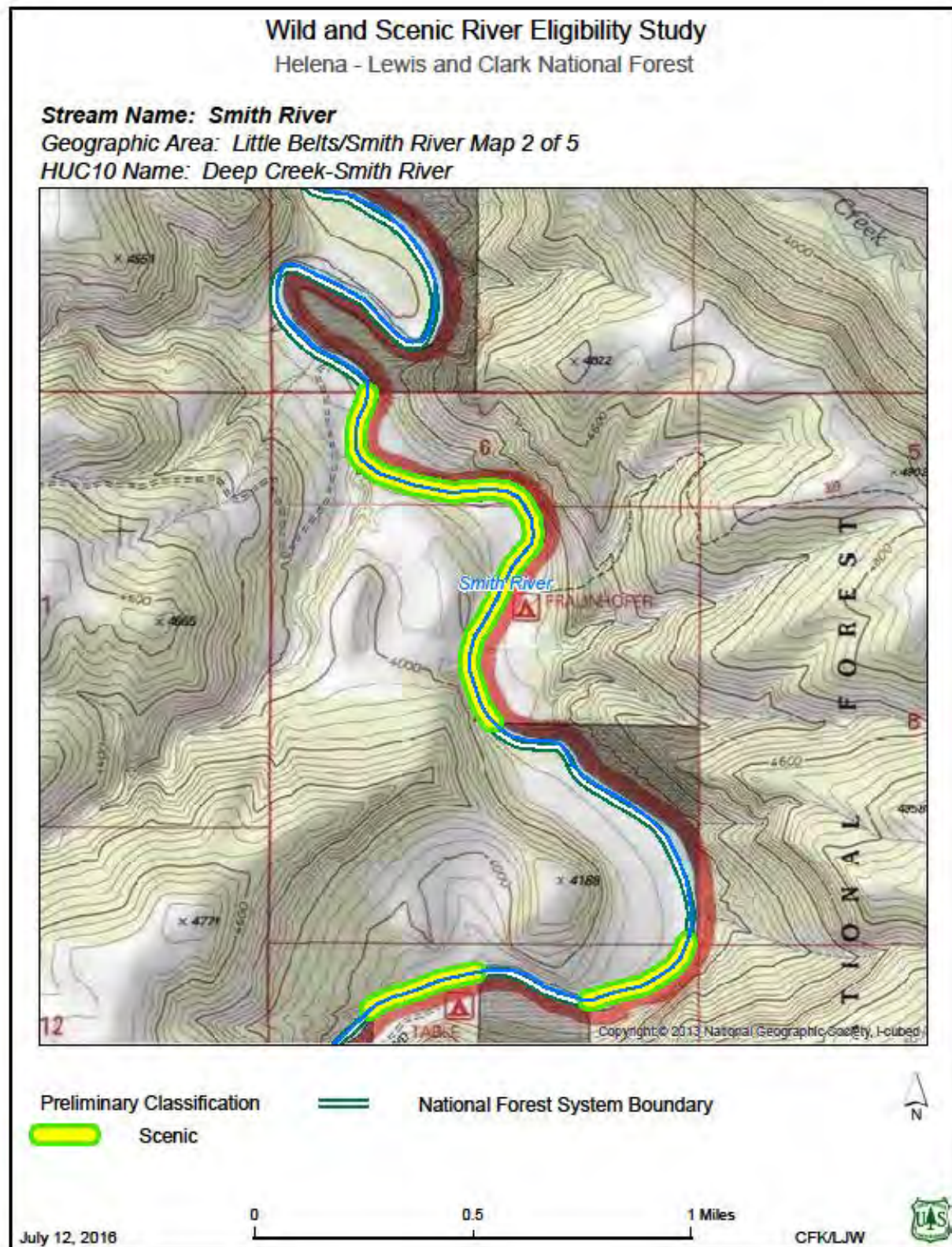




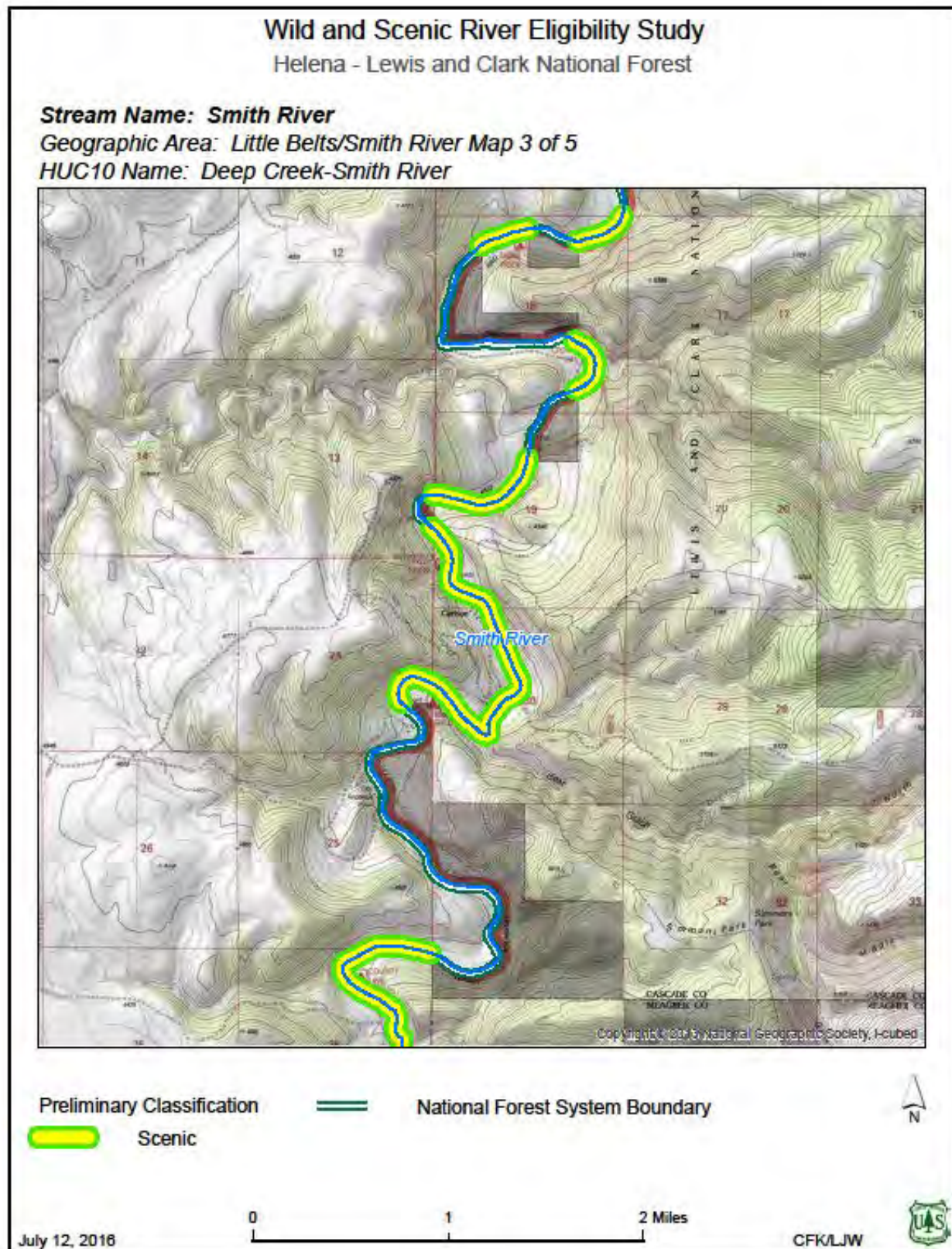




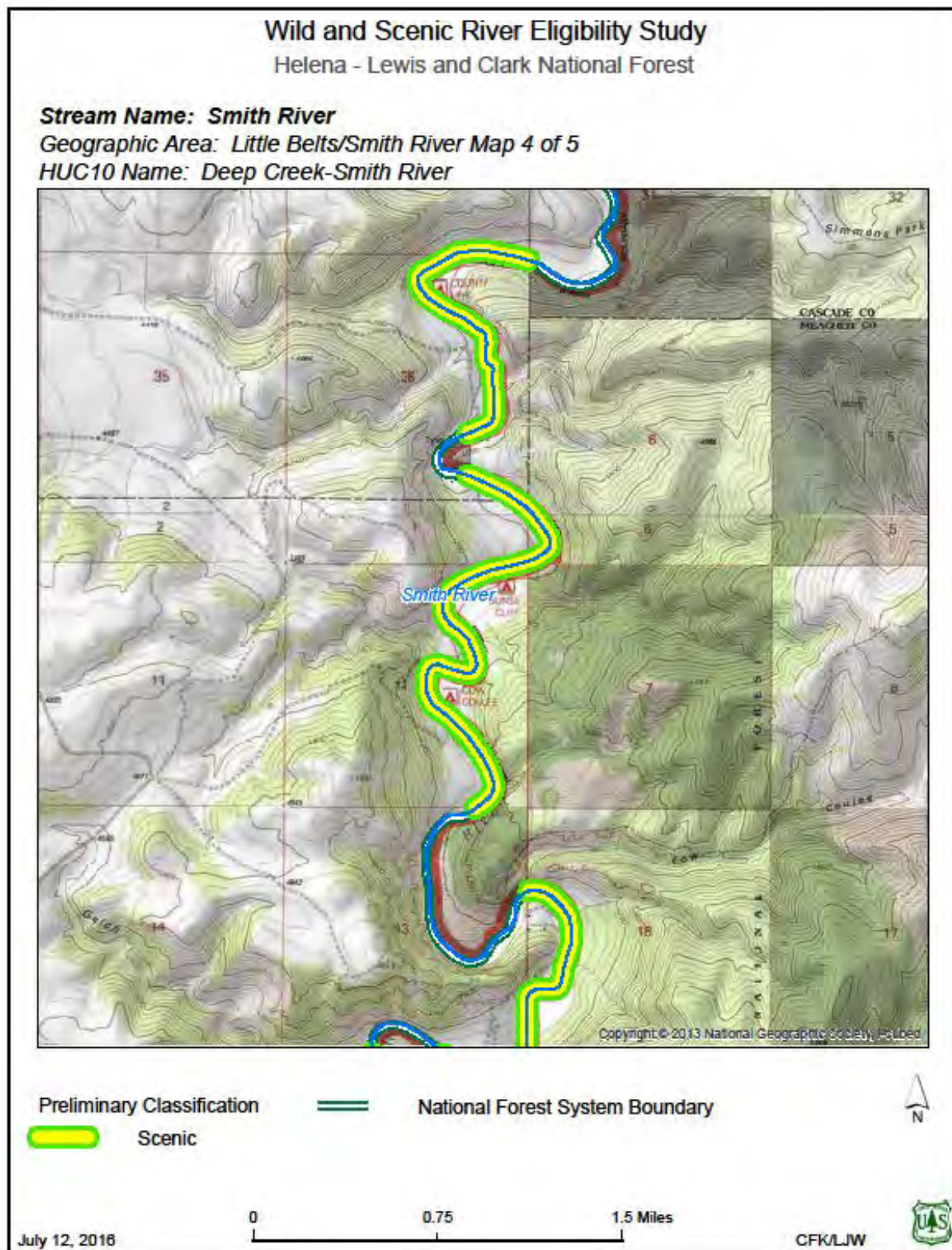




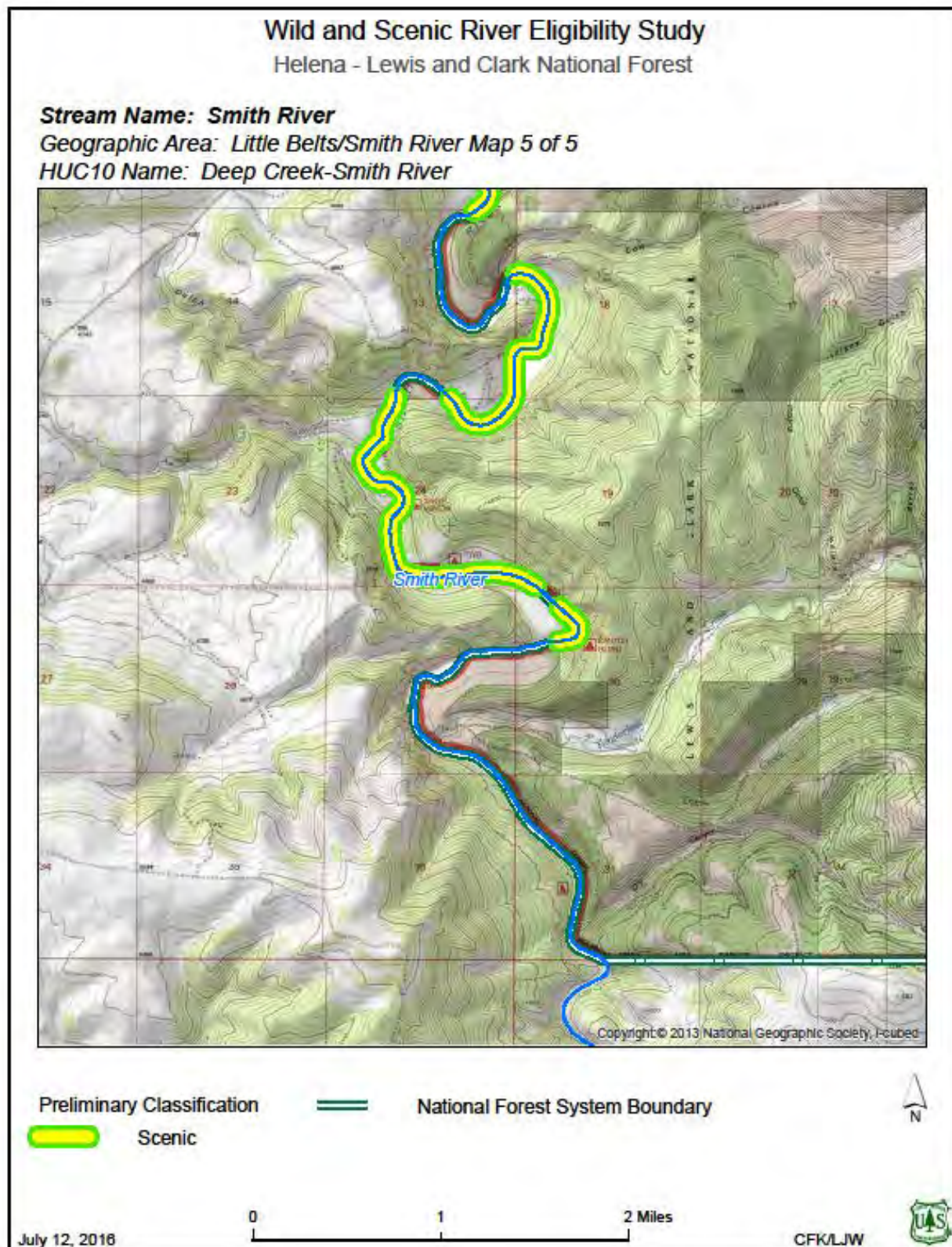




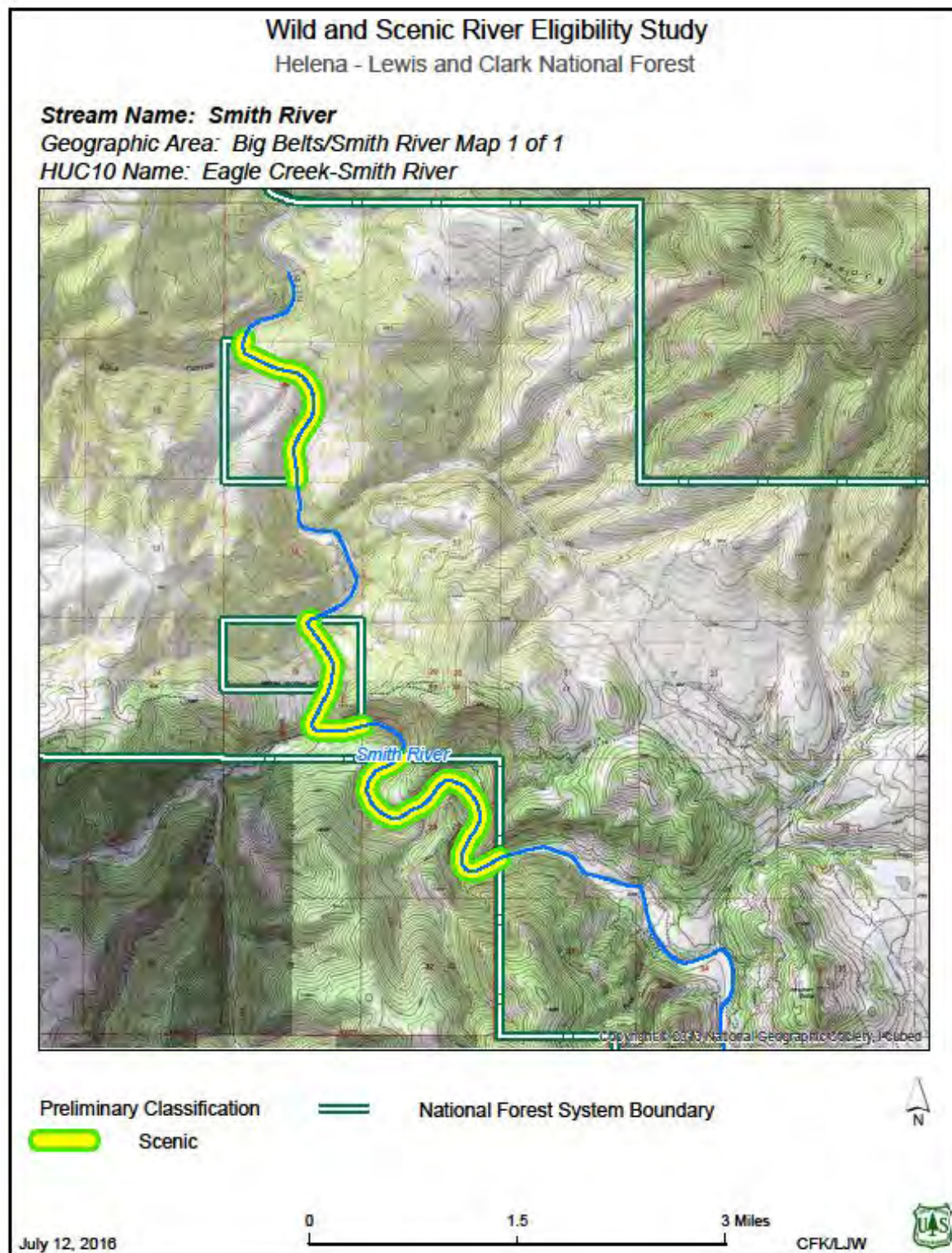














## Tenderfoot Creek

Tenderfoot Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Recreation, Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to Iron Mines Creek.
Miles of each segment	21.5 miles
Potential Classification	Scenic
Location	Geographic area: Little Belt Mountains HUC 10: Tenderfoot Creek Beginning Point: T14N R4E Section 30
County(ies)	Meagher
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	Spectacular 20 foot tall waterfall that is very aesthetic.
Recreation	The Tenderfoot Creek area offers exceptional and unique recreational opportunities for hiking, horseback riding, fishing, and camping in a non-motorized, quiet area. The main trail generally follows the stream for most of its length. Tenderfoot Creek also has spectacular waterfalls that are often a focal point for hikers along the trail. Recreational fishing focuses on rainbow trout and whitefish below the waterfall.
Geologic	No ORV.
Fisheries	Tenderfoot Creek provides a considerable portion of the spawning habitat for the fish in the Smith River. Important spawning habitat for rainbow trout and whitefish below the waterfall. Important habitat for west throat cutthroat trout throughout the drainage.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

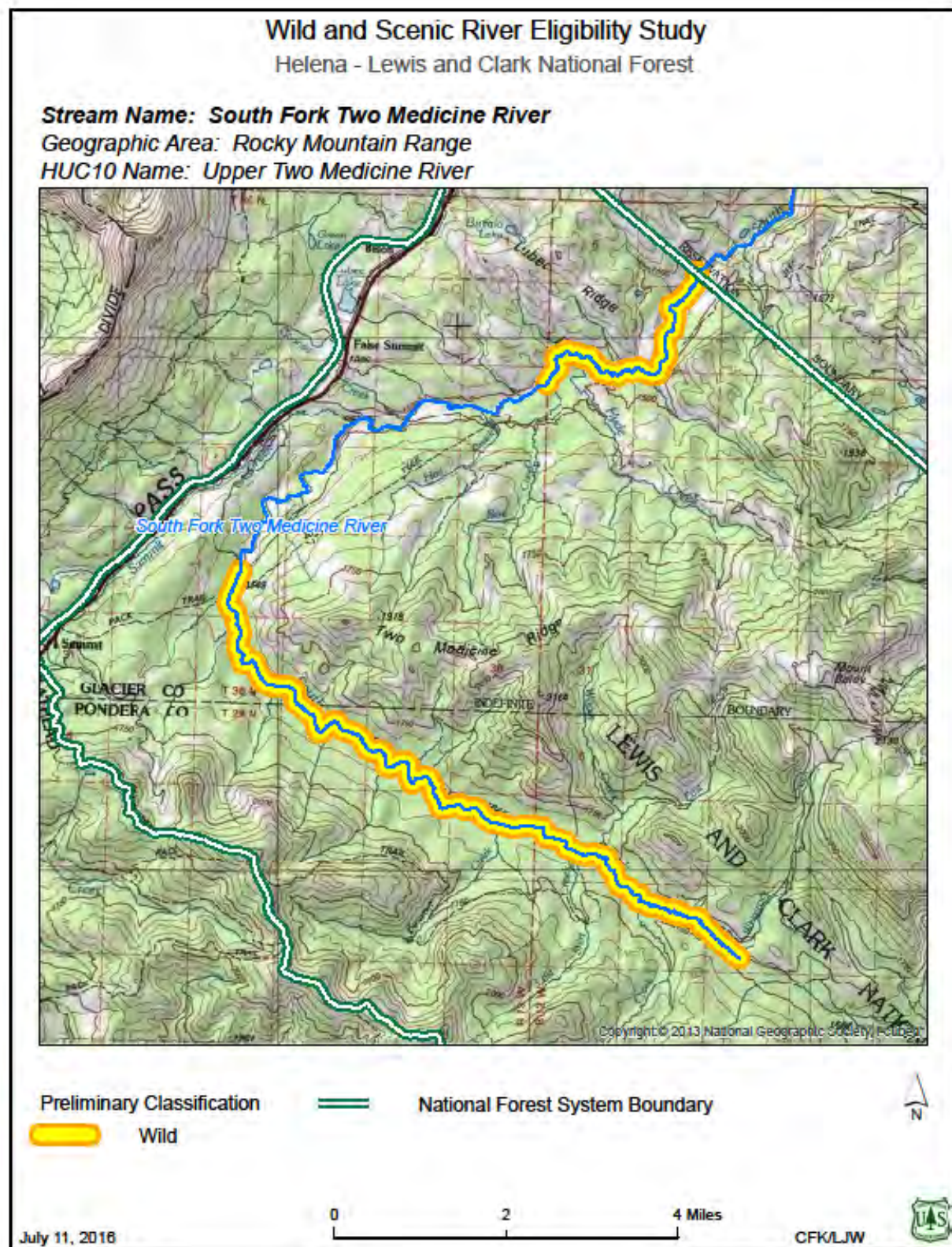


## Rocky Mountain Range Geographic Area

### South Fork Two Medicine River

South Fork Two Medicine River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Cultural
Area of Comparison	State of Montana
Eligible Segments	Segment 1 - From FS boundary to Box Creek Segment 2 – From private land boundary to headwaters.
Miles of each segment	Segment 1: 3.4 miles Segment 2: 9.5 miles
Potential Classification	Segment 1 – Wild Segment 2 - Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Upper Two Medicine River Beginning Point: T30N R12W Section 5
County(ies)	Glacier (Segment 1) /Pondera (Segment 2)
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	Incredible scenery with big canyons and big waterfalls (75 foot).
Recreation	No ORV.
Geologic	No ORV
Fisheries	No ORV
Wildlife	No ORV
Cultural	Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.
Botanical/ Natural	No ORV
Natural Other	No ORV

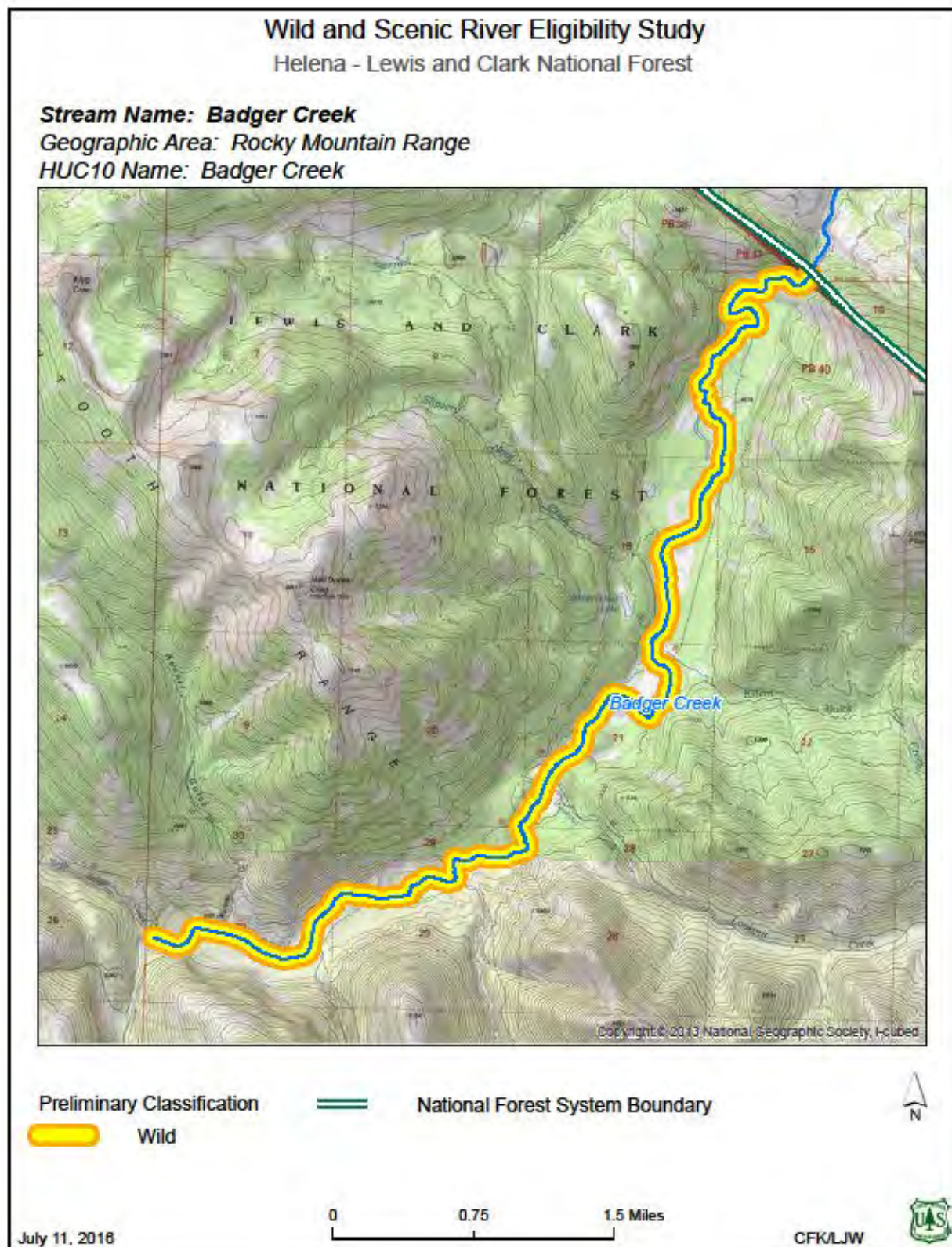




## Badger Creek

Badger Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Cultural
Area of Comparison	State of Montana
Eligible Segments	From the FS boundary to confluence with North and South Badger Creeks.
Miles of each segment	7.2 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Badger Creek Beginning Point: T29N R11W Section 3
County(ies)	Pondera
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV
Recreation	No ORV
Geologic	No ORV
Fisheries	No ORV
Wildlife	No ORV
Cultural	Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.
Botanical/ Natural	No ORV
Natural Other	No ORV

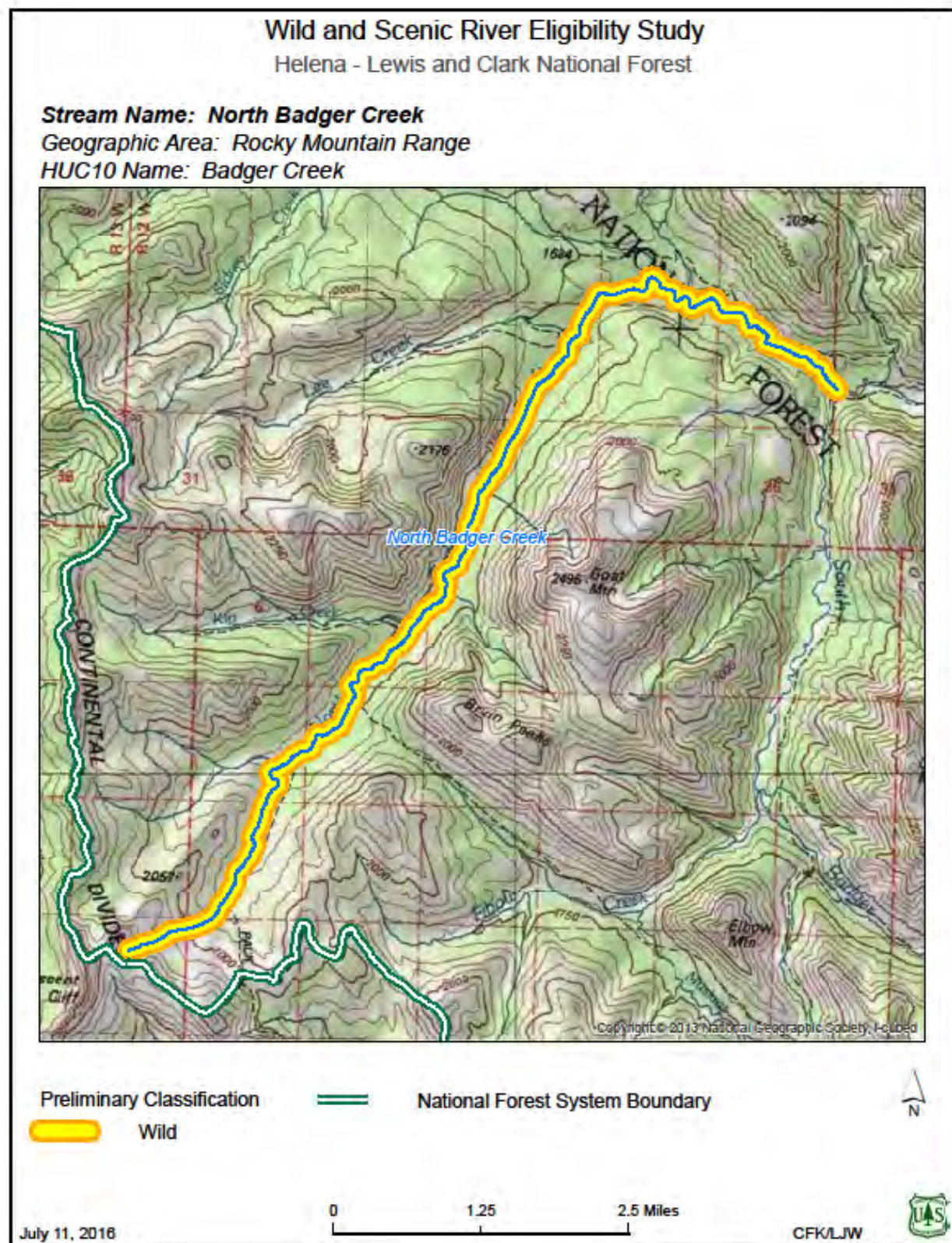




## North Badger Creek

North Badger Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish Cultural
Area of Comparison	State of Montana
Eligible Segments	From the junction with main Badger and South Badger Creeks to the headwaters.
Miles of each segment	10.4 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Badger Creek Beginning Point: T29N R12W Section 25
County(ies)	Pondera
Identified in Previous Eligibility Studies. Y/N	Yes
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Part of WCT meta- population with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front.
Wildlife	No ORV.
Cultural	Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

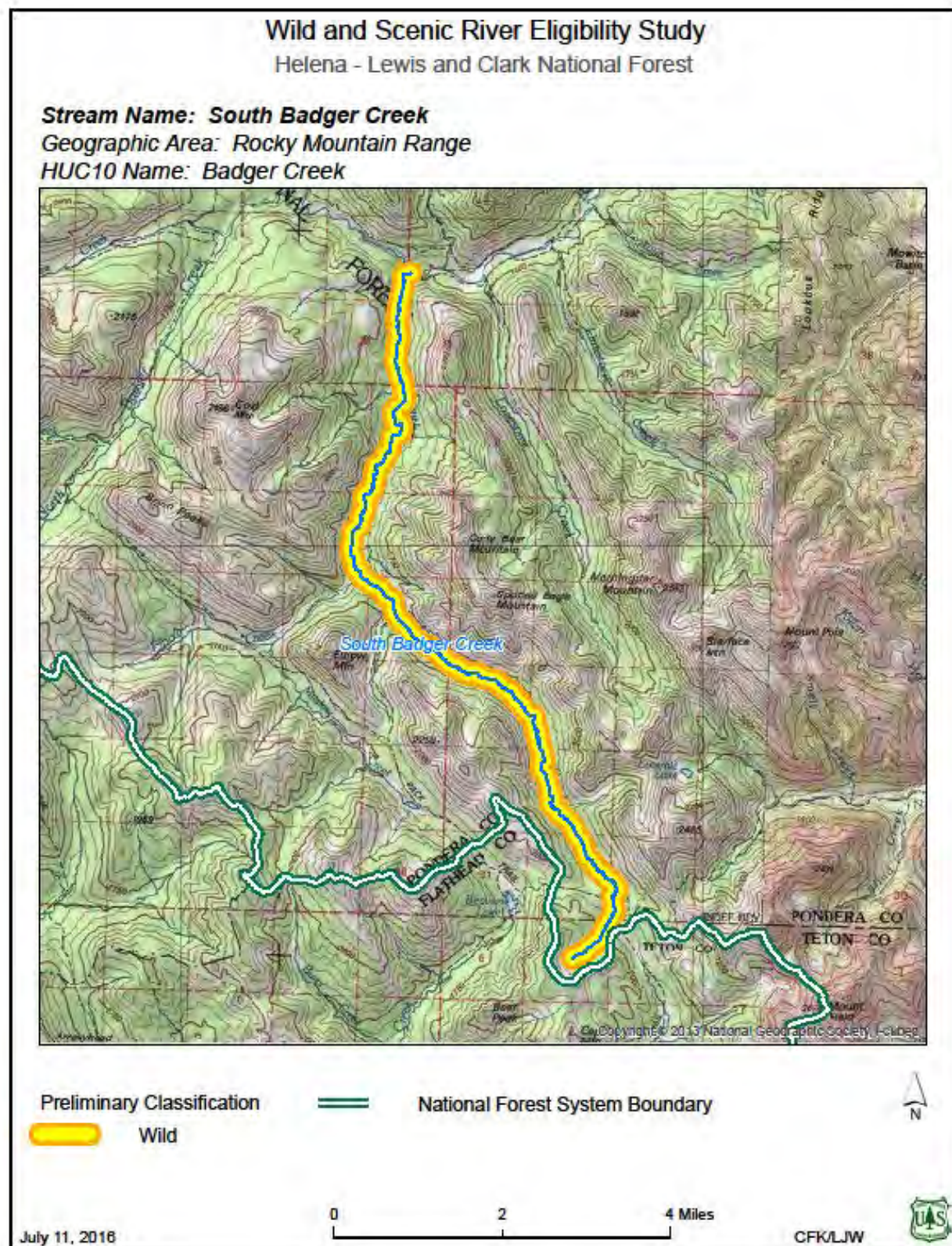




## South Badger Creek

South Badger Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Cultural
Area of Comparison	State of Montana
Eligible Segments	From junction with main Badger and North Badger Creeks to headwaters.
Miles of each segment	10.9 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Badger Creek Beginning Point: T29N R12W Section 25
County(ies)	Pondera
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.
Botanical/ Natural	No ORV.
Natural Other	No ORV.





## Lee Creek

Lee Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From mouth to the headwaters.
Miles of each segment	4.6 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Badger Creek Beginning Point: T29N R12W Section 27
County(ies)	Pondera
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Part of a WCT meta- population of fish with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

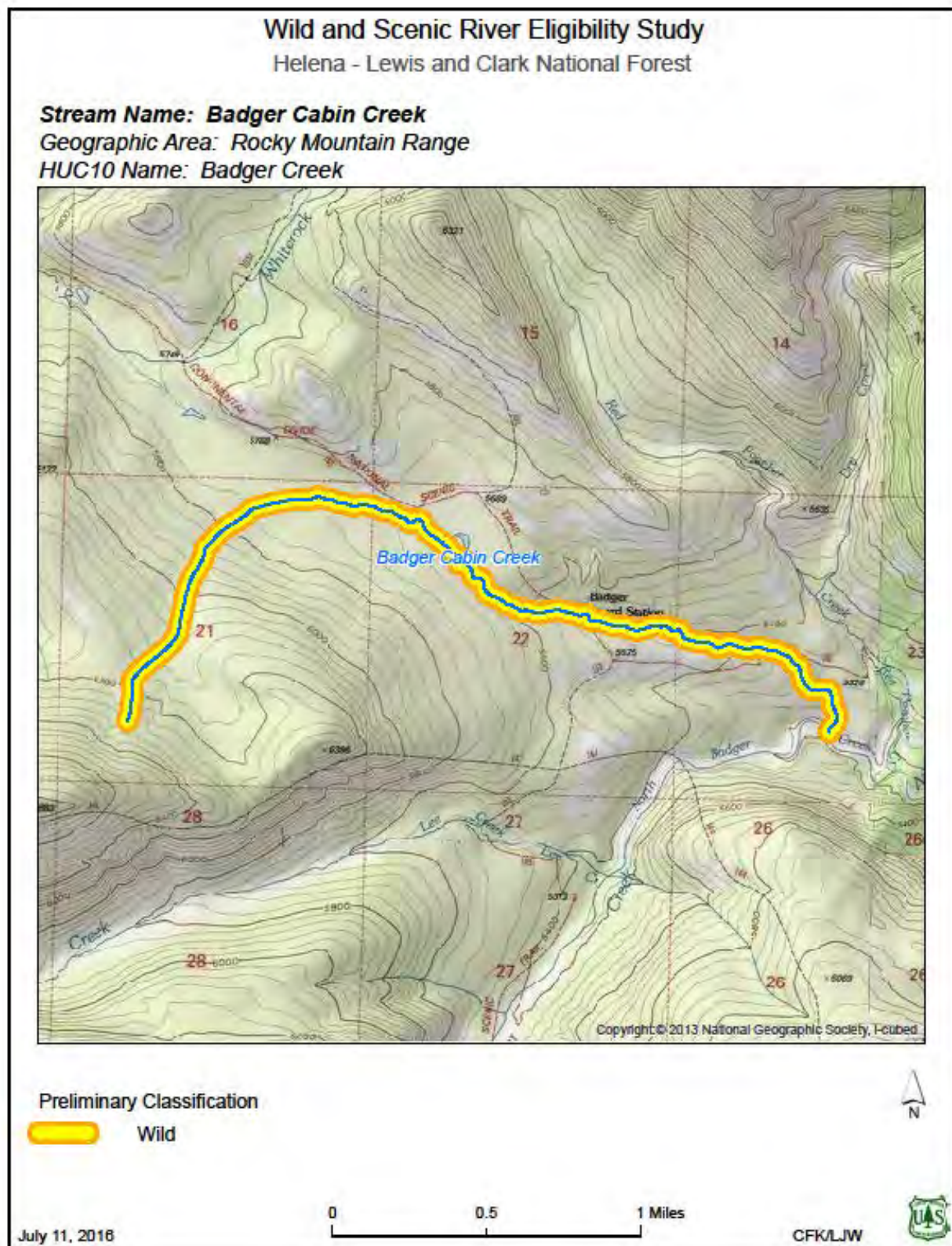




## Badger Cabin Creek

Badger Cabin Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From mouth to headwaters.
Miles of each segment	3.2 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Badger Creek Beginning Point: T29N R12W Section 23
County(ies)	Pondera
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Part of WCT meta- population with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

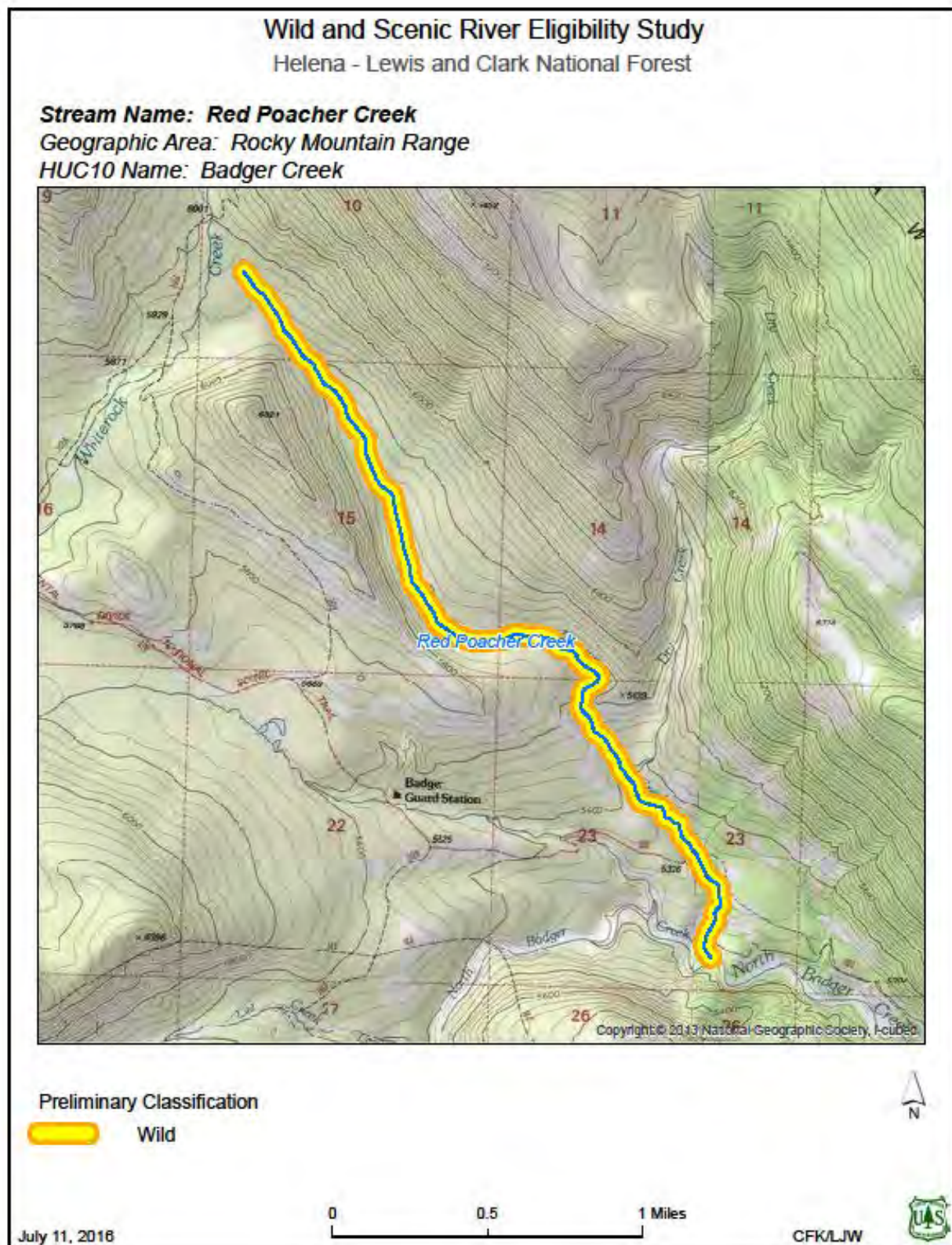






## Red Poacher Creek

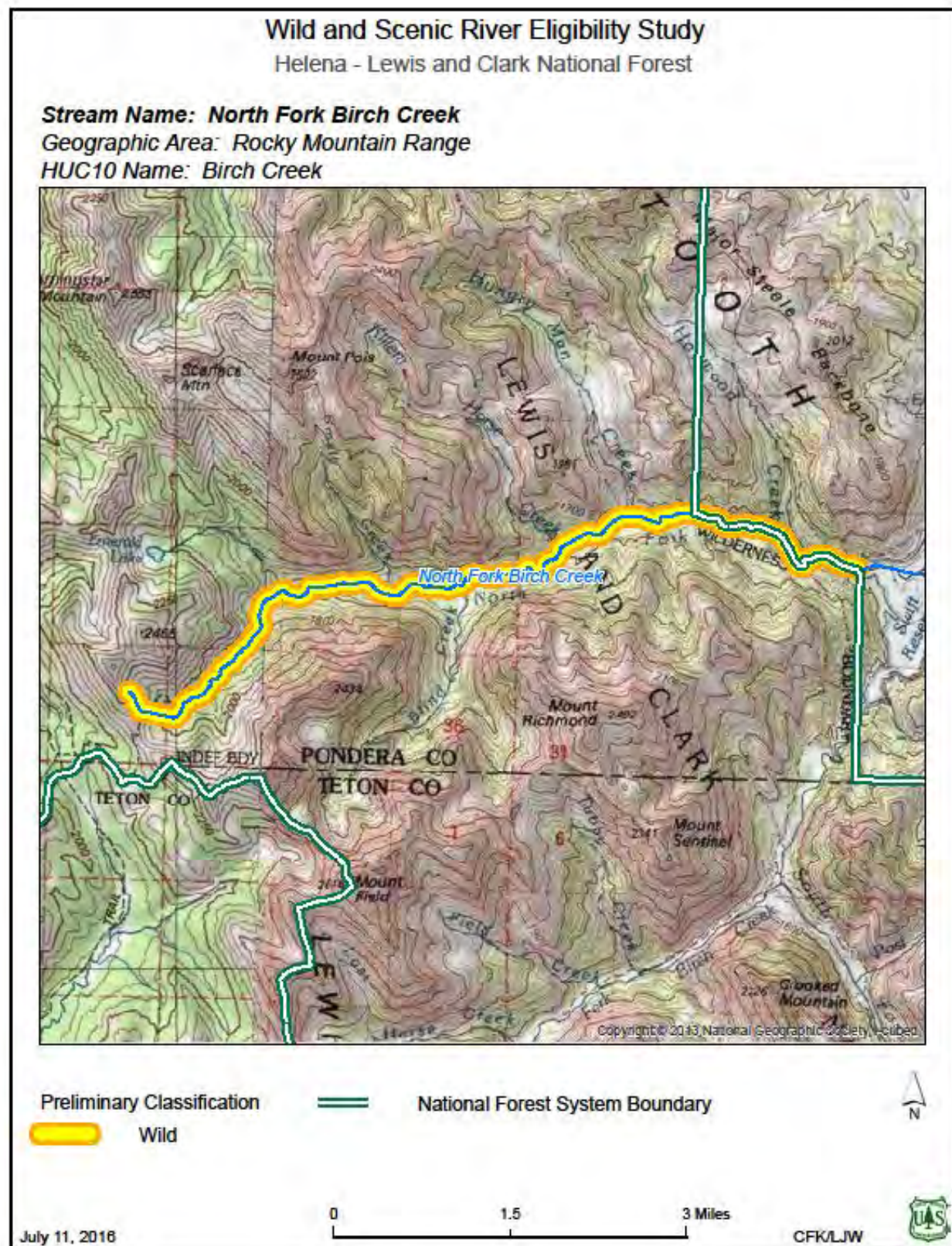
Red Poacher Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From confluence with North Badger Creek to headwaters.
Miles of each segment	3.1 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Badger Creek Beginning Point: T29N R12W Section 23
County(ies)	Pondera
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	Part of meta- population with North Badger, Badger Cabin, Lee, and Red Poacher Rivers. All of these together form best meta population of pure westslope cutthroat trout on the Rocky Mountain Front.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



## North Fork Birch Creek

North Fork Birch Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Cultural
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters.
Miles of each segment	7.8 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Birch Creek Beginning Point: T28N R10W Section 27
County(ies)	Pondera
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

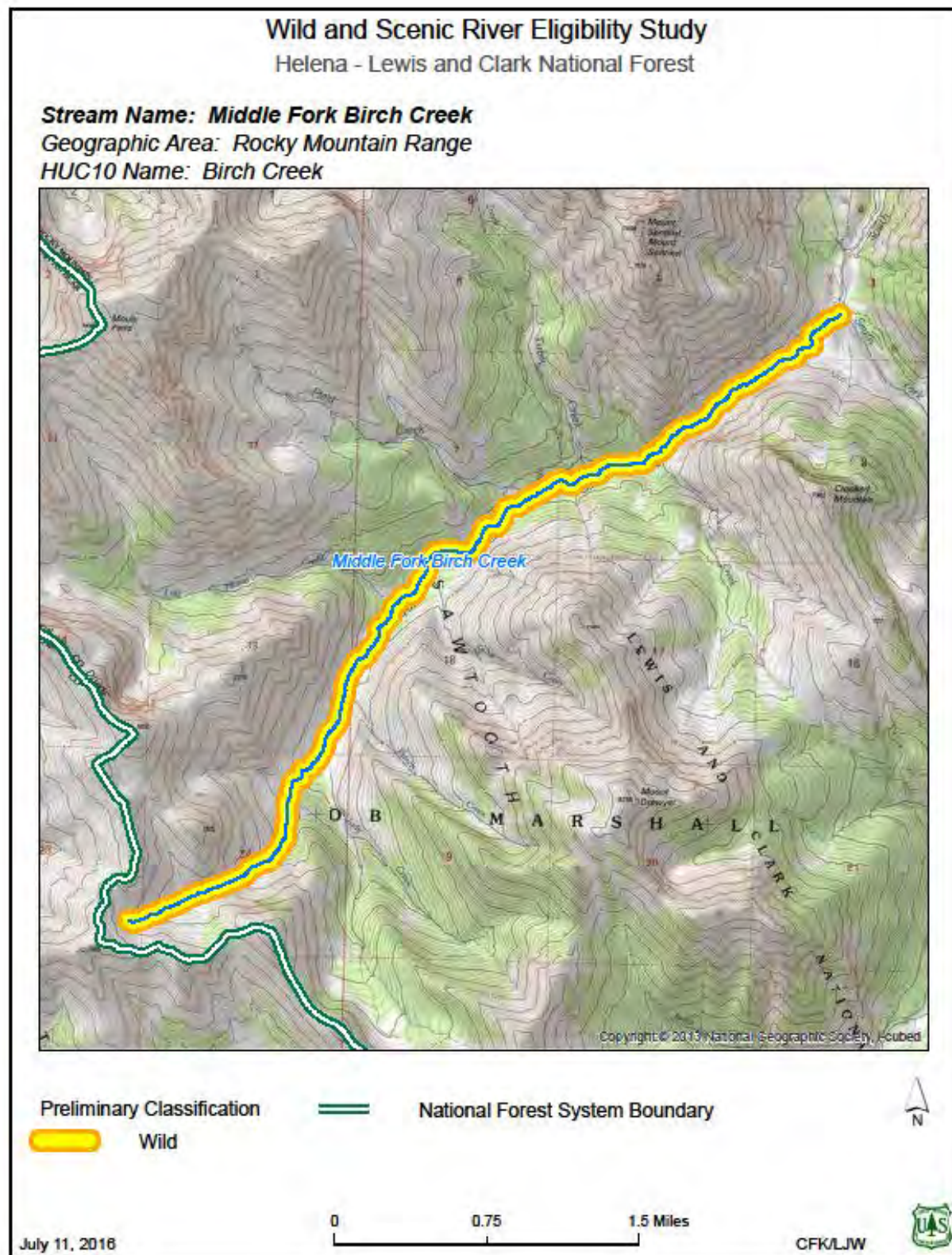




## Middle Fork Birch Creek

Middle Fork Birch Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Cultural
Area of Comparison	State of Montana
Eligible Segments	From confluence to the headwaters.
Miles of each segment	5.2 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Birch Creek Beginning Point: T27N R10W Section 4
County(ies)	Teton
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	Beautiful waterfalls.
Recreation	No ORV.
Geologic	No ORV
Fisheries	No ORV.
Wildlife	No ORV
Cultural	Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.
Botanical/ Natural	No ORV
Natural Other	No ORV

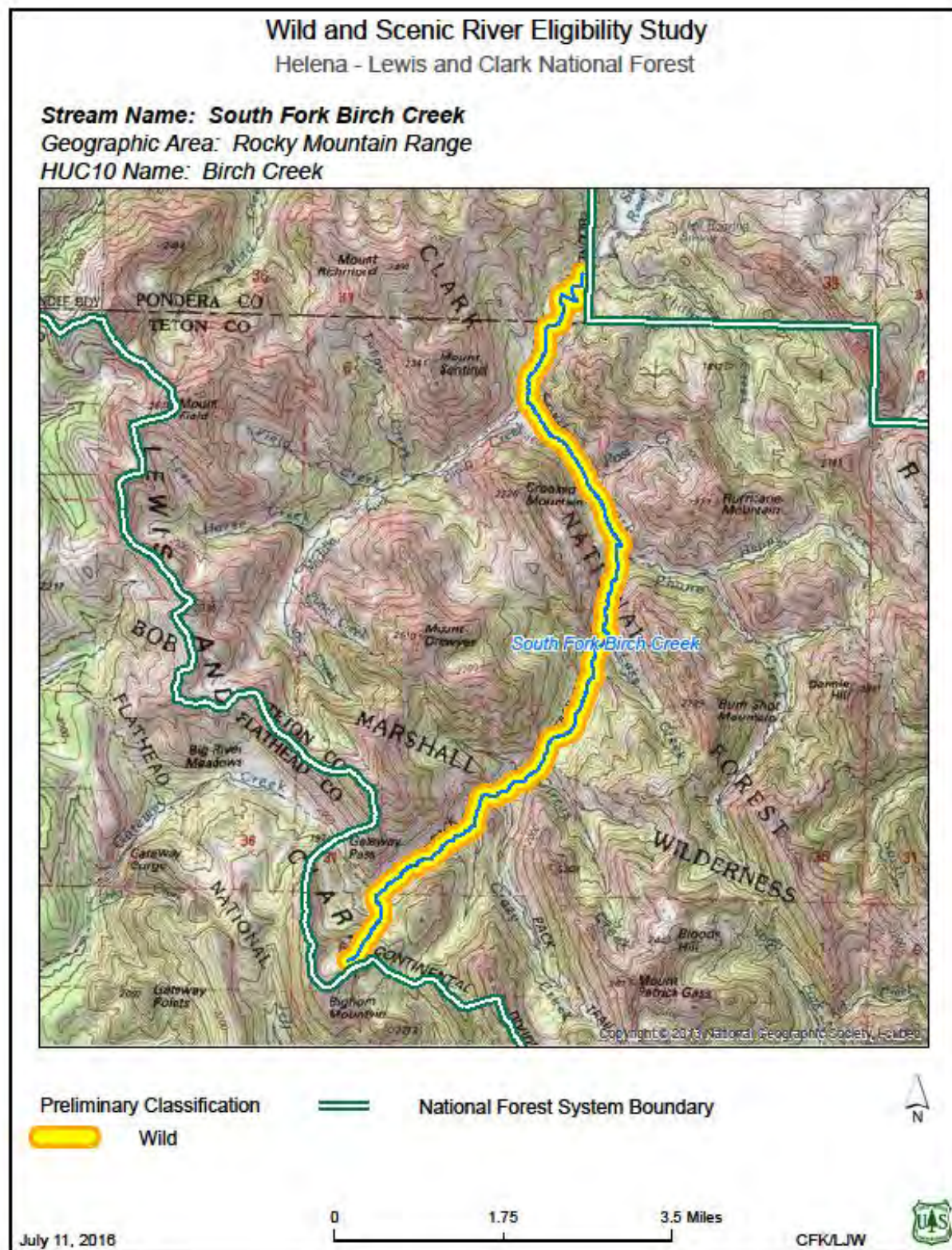




## South Fork Birch Creek

South Fork Birch Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Recreation, Fish, Wildlife, Cultural
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters
Miles of each segment	9.8 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Birch Creek Beginning Point: T28N R10W Section 33
County(ies)	Teton
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	Compressed canyon with falls, pools, waterfalls, caves, and cliffs.
Recreation	One of the primary routes to the Chinese Wall within the Bob Marshall Wilderness. Receives a considerable amount of international interest and use.
Geologic	No ORV.
Fisheries	Populations of pure westslope cutthroat trout which is protected by waterfalls. One of the most secure populations east of the continental divide. Potential long-term source population.
Wildlife	Harlequin duck breeding, most important duck habitat in region, one of five key breeding streams on the Forest
Cultural	Located within the Badger Two Medicine Traditional Cultural District. This area holds high importance for the Blackfeet Nation for traditional cultural uses.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

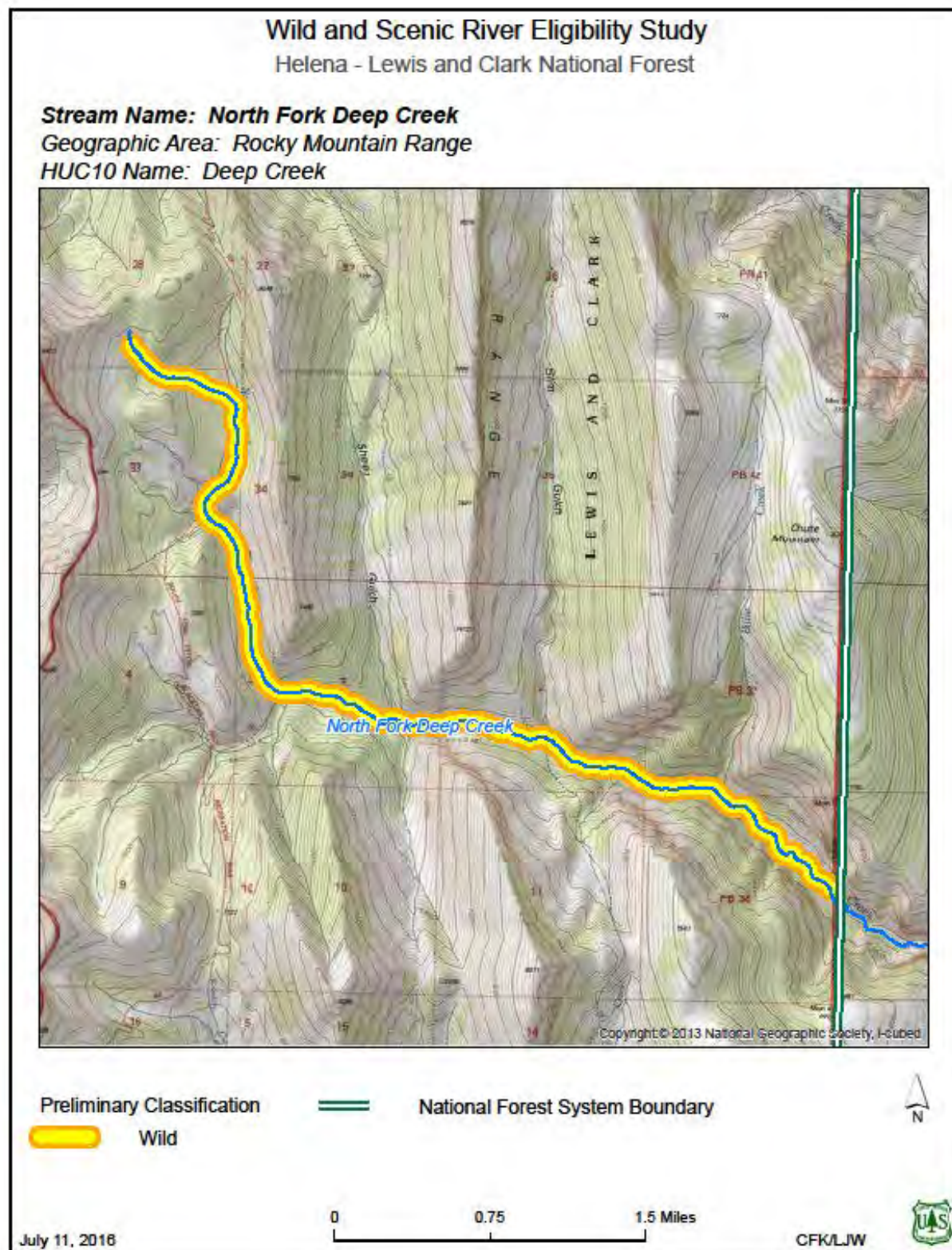




## North Fork Deep Creek

North Fork Deep Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwater.
Miles of each segment	5.3 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Deep Creek Beginning Point: T23N R9W Section 12
County(ies)	Teton
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	Scenery is dominated by a limestone canyon with steep sides that drop down to the river bottom.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

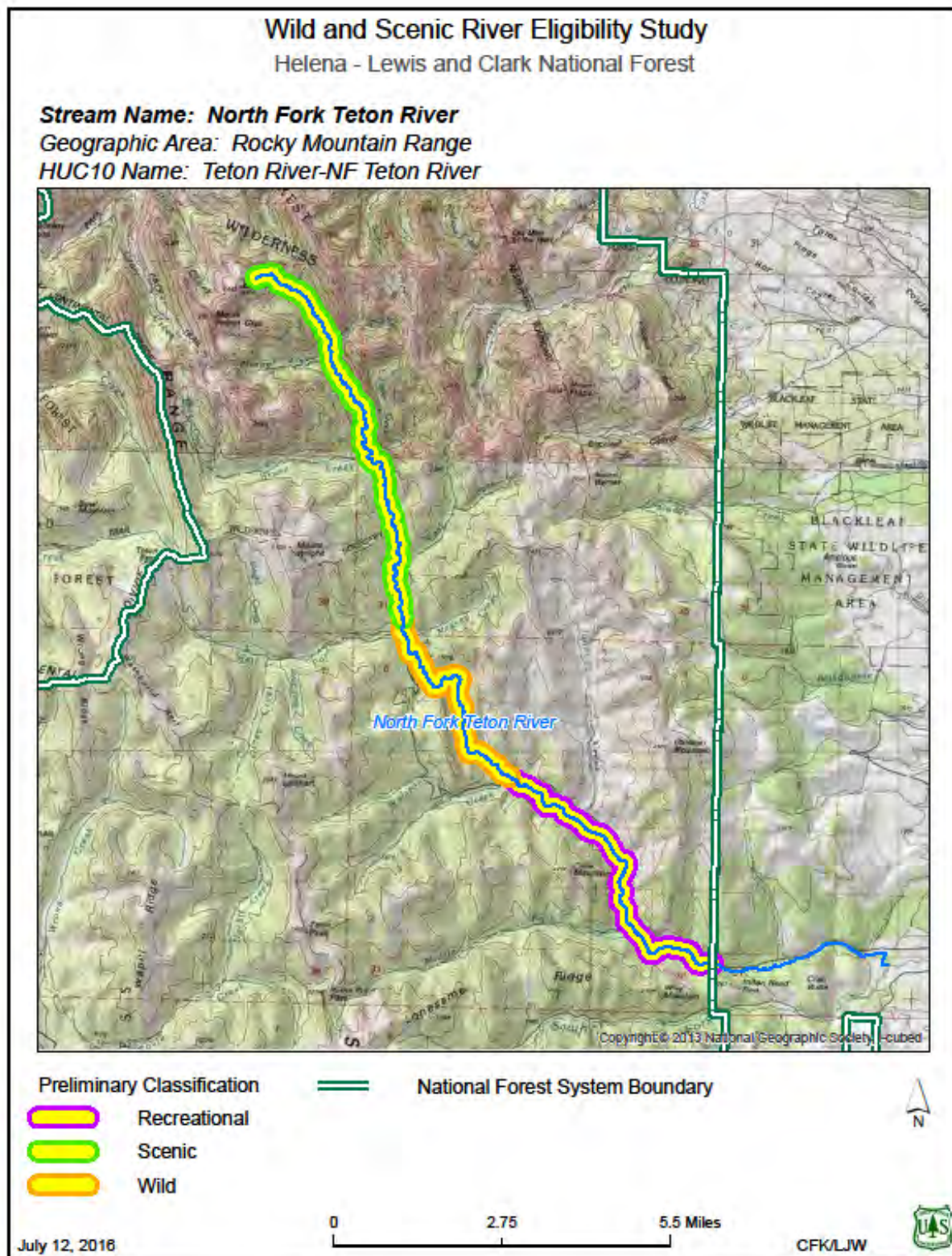




## North Fork Teton River

North Fork Teton River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Recreation, Scenery, and Fishery
Area of Comparison	State of Montana
Eligible Segments	Segment 1: From FS Boundary to road crossing above Elko Campground (bottom of the box canyon) Segment 2: from road crossing to West Fork Campground (through the box canyon) Segment 3: from West Fork Campground to headwaters
Miles of each segment	Segment 1: 5.5 miles Segment 2: 4.1 miles Segment 3: 7.6 miles
Potential Classification	Segment 1: Recreational Segment 2: Wild Segment 3: Scenic
Location	Geographic area: RM Range HUC 10: Teton River-NF Teton River (1003020501) Beginning Point:
County(ies)	Teton County
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	Exceptional scenery through the box canyon.
Recreation	Recreational floating through the box canyon.
Geologic	No ORV
Fisheries	This meta-population is slightly hybridized. However, it is over 95% pure and is also the strongest WCT population within the entire Teton River drainage. As a meta-population, it is highly productive, at least within the main stem segments. There are fisheries ORVs in all three segments.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

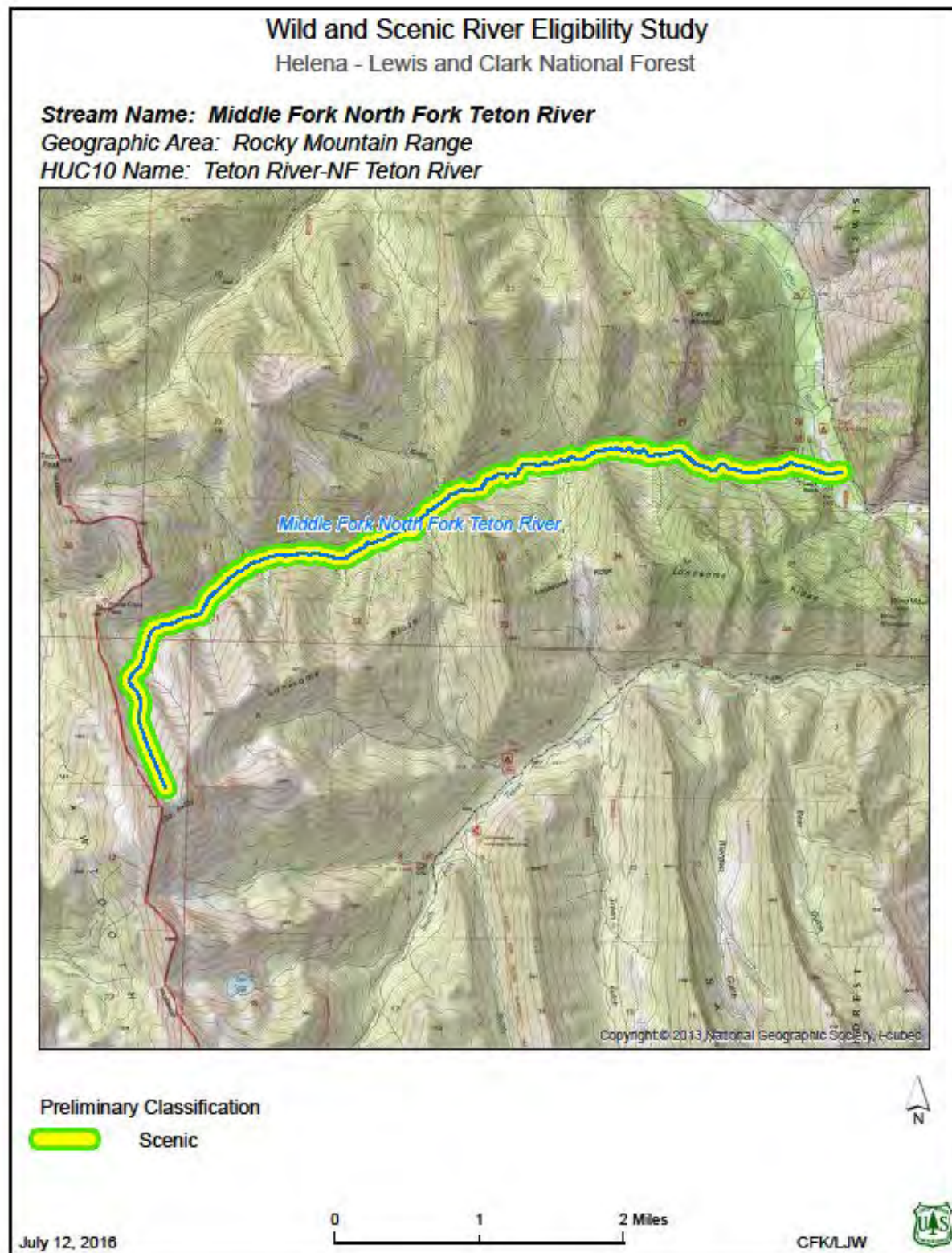




## Middle Fork North Fork Teton River

Middle Fork North Fork Teton River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From the confluence with North Fork Teton River to headwaters
Miles of each segment	6.8 miles
Potential Classification	Scenic
Location	Geographic area: RM Range HUC 10: Teton River-NF Teton River (1003020501) Beginning Point:
County(ies)	Teton County
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV
Geologic	No ORV
Fisheries	This meta-population is slightly hybridized. However, it is over 95% pure and is also the strongest WCT population within the entire Teton River drainage. As a meta-population, it is highly productive, at least within the main stem segments.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.





## Waldron Creek

Waldron Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From the confluence with North Fork Teton River to headwaters
Miles of each segment	4.3 miles
Potential Classification	Recreational
Location	Geographic area: RM Range HUC 10: Teton River-NF Teton River (1003020501) Beginning Point:
County(ies)	Teton County
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV
Geologic	No ORV
Fisheries	This meta-population is slightly hybridized. However, it is over 95% pure and is also the strongest WCT population within the entire Teton River drainage. As a meta-population, it is highly productive, at least within the main stem segments.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

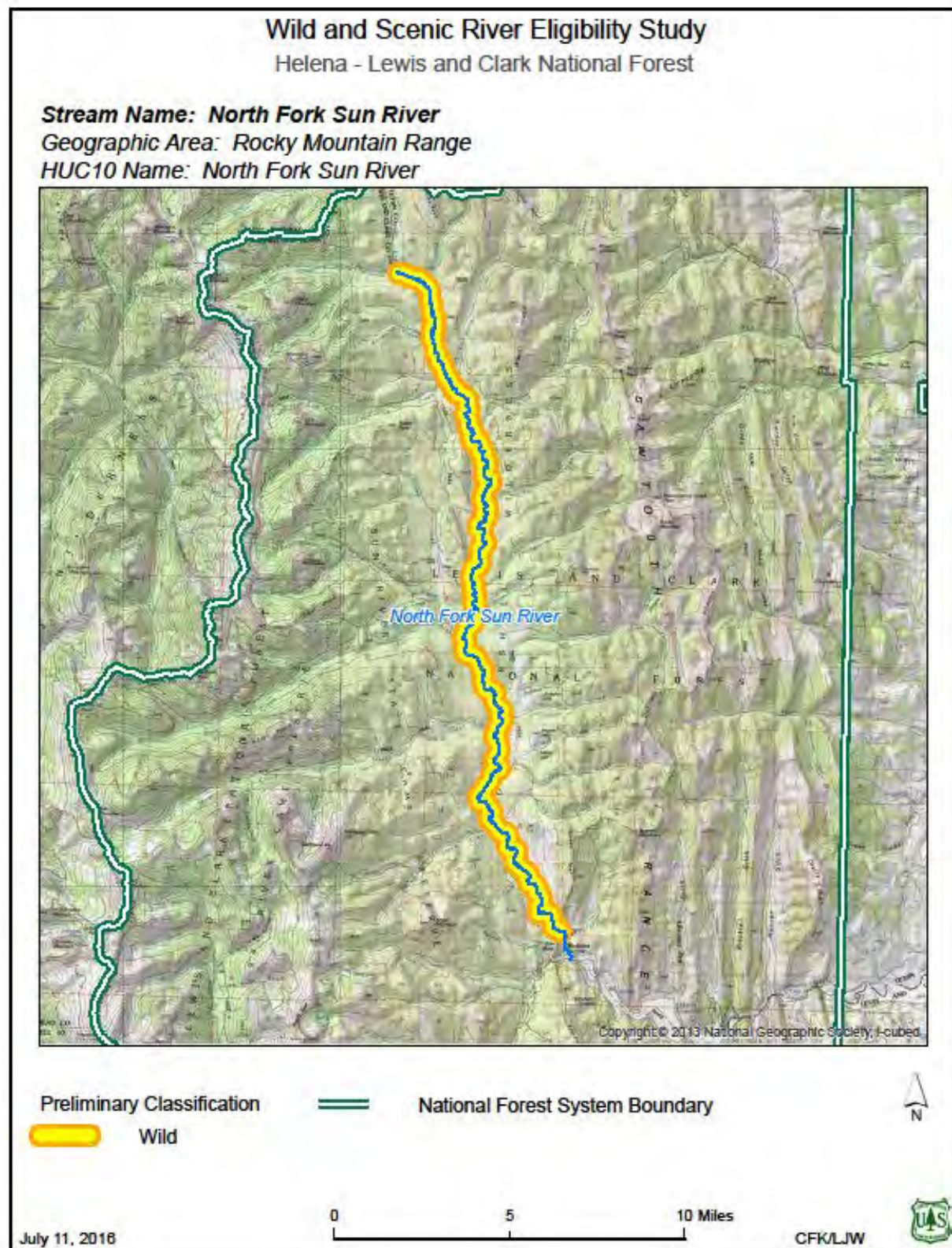




## North Fork Sun River

North Fork Sun River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Recreation
Area of Comparison	State of Montana
Eligible Segments	From wilderness boundary to the headwaters.
Miles of each segment	26.2 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: N Fork Sun River Beginning Point: T22N R10W Section 26
County(ies)	Teton
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	Large, broad valley, ringed by peaks and panoramic views.
Recreation	The North Fork of the Sun River is one of the core drainages of Bob Marshall wilderness. Hunting is the primary recreation activity; however, the area is very popular for wildlife viewing, wilderness camping and fishing as well.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

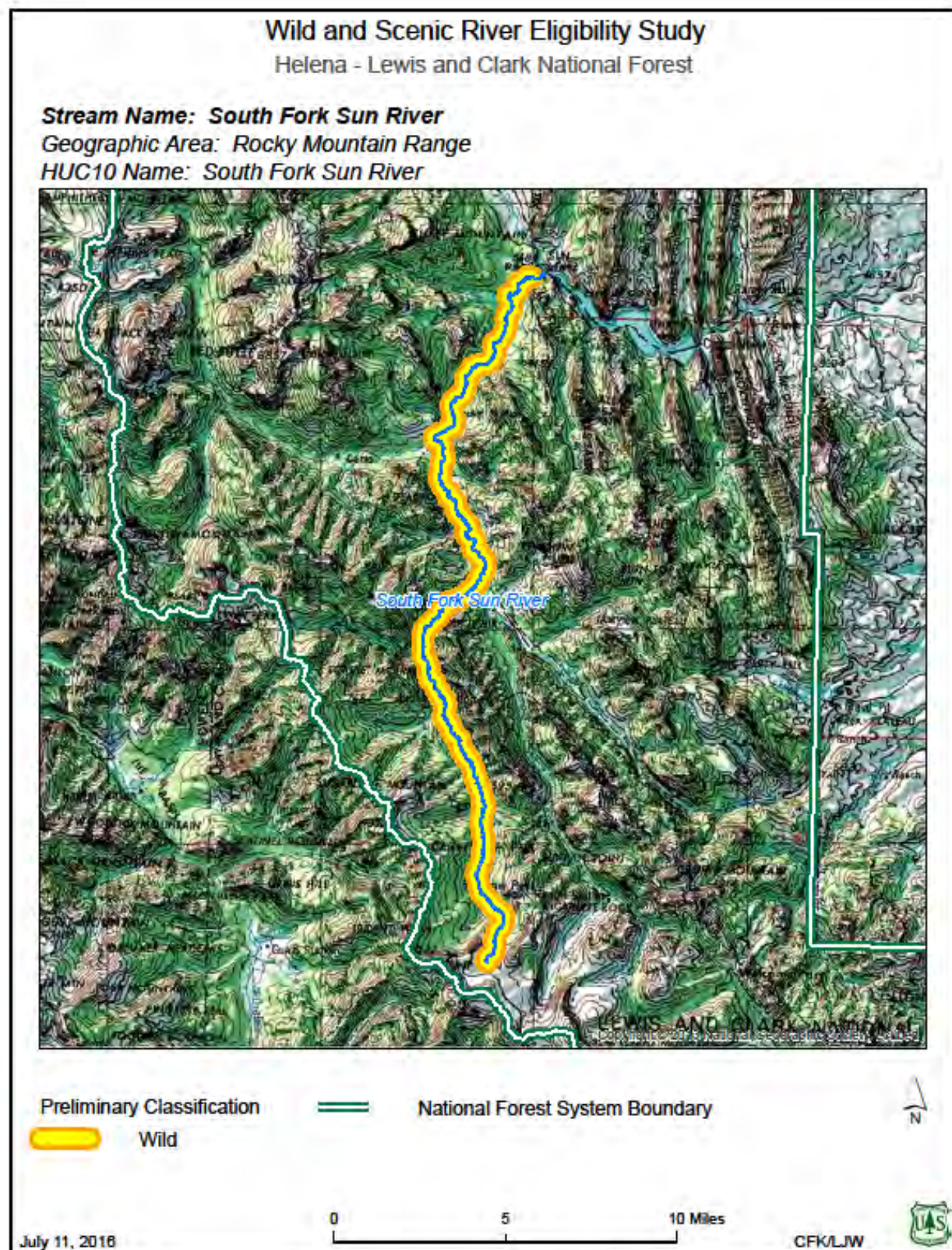




## South Fork Sun River

South Fork Sun River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Recreation, Wildlife
Area of Comparison	State of Montana
Eligible Segments	From wilderness boundary to headwaters.
Miles of each segment	26.2 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mtn Range HUC 10: S Fork Sun River Beginning Point: T22N R10W Section 26
County(ies)	Teton
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	No ORV.
Recreation	This area is extremely popular for recreational fishing. The area is also used extensively for hiking, horseback riding, camping, and for the overall wilderness experience.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	Outstanding Harlequin duck habitat. Un-impacted by development, pristine high functioning.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

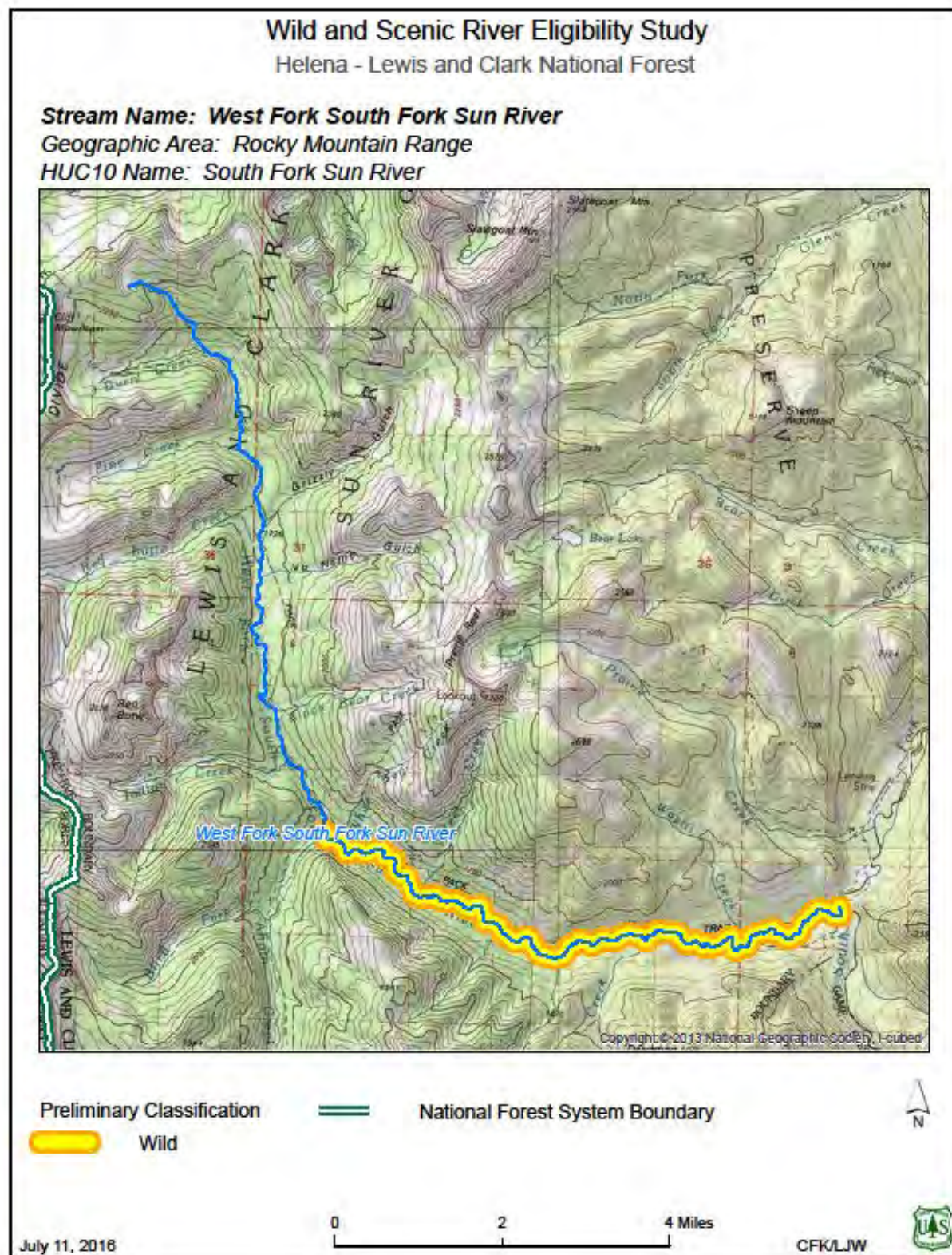




## West Fork South Fork Sun River

West Fork South Fork Sun River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Recreation, Wildlife
Area of Comparison	State of Montana
Eligible Segments	From mouth to junction with Ahorn Creek.
Miles of each segment	8.5 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: South Fork Sun River Beginning Point: T21N R10W Section 20
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	Trails along this river provide one of the primary access routes to the Chinese Wall in the Bob Marshall Wilderness. Recreational fishing along this route is also very popular.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	Key harlequin breeding area.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

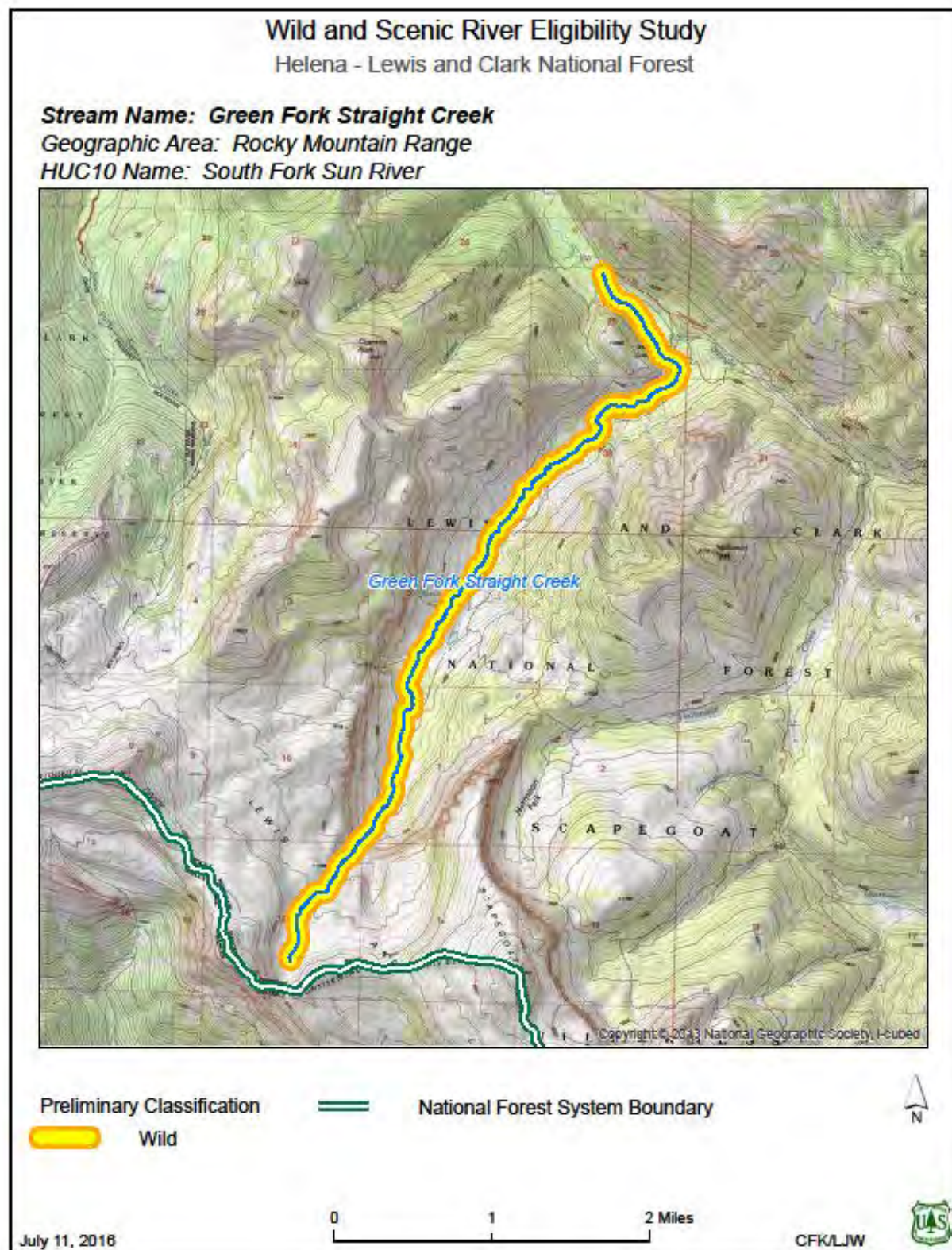




## Green Fork Straight Creek

Green Fork Straight Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Geology
Area of Comparison	State of Montana
Eligible Segments	From mouth to the headwaters.
Miles of each segment	5.9 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: S Fork Sun Beginning Point: T19N R10W Section 25
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	Spectacular scenery. River located along a cliff face. In spring runoff, waterfalls shoot out of openings in the cliff face.
Recreation	No ORV.
Geologic	There are a number of caves in the cliffs along this area resulting from the Geology. Geology is the Madison group which is a combination of over thrust structures within the Sawtooth range on the Rocky Mountain front.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

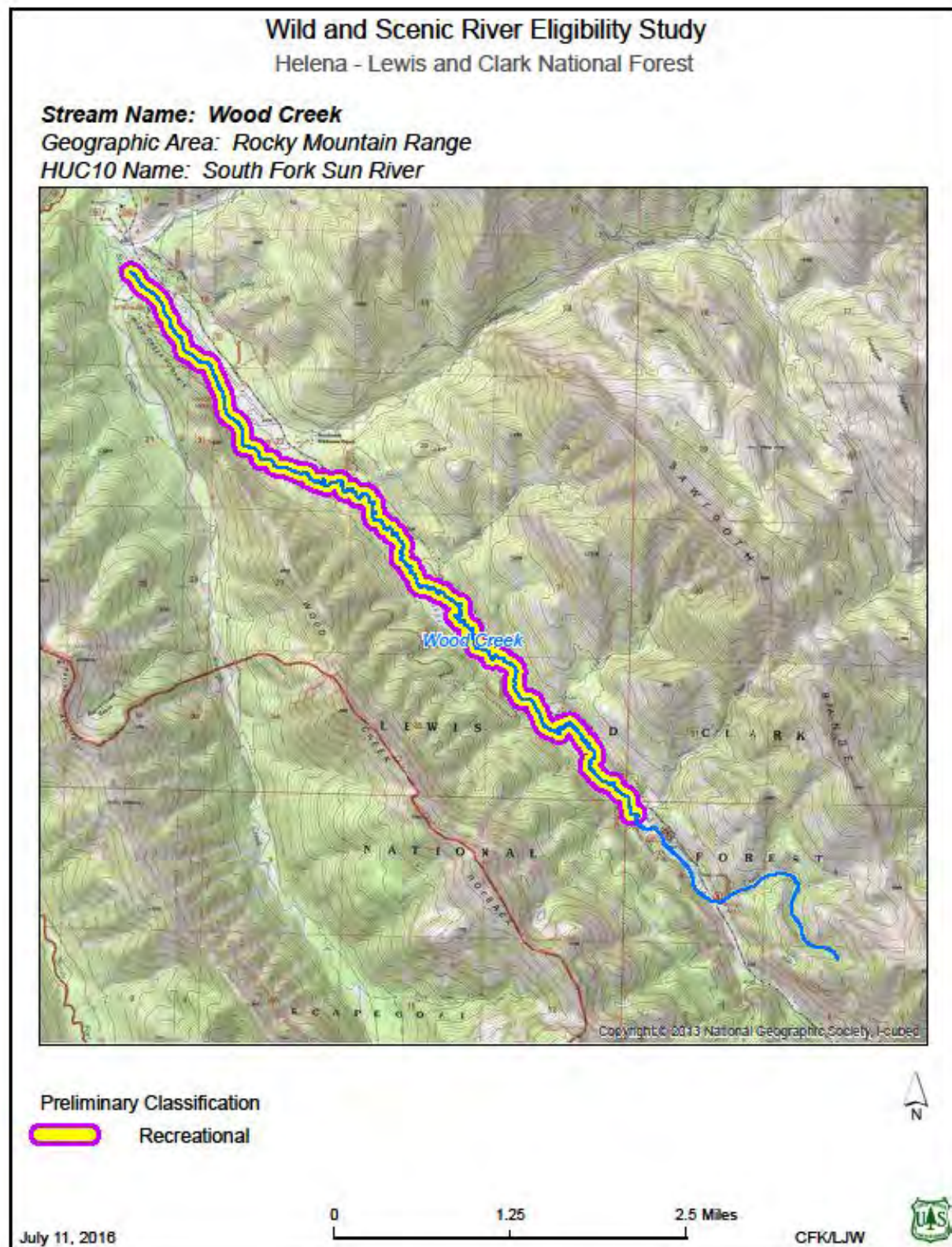




## Wood Creek

Wood Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Wildlife
Area of Comparison	State of Montana
Eligible Segments	From below the dam on Wood Lake to the confluence with Straight Creek.
Miles of each segment	7.1 miles
Potential Classification	Recreational
Location	Geographic area: Rocky Mountain Range HUC 10:South Fork Sun River Beginning Point: T20N R10W Section 16
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	Unique for the productive diverse habitat. Overall best habitat diversity east of continental divide. Northern bog lemming habitat with only known habitat east of divide. Breeding habitat for western toads and trumpeter swans. Beaver activity has turned it into a complex habitat. Collectively elevates to an ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

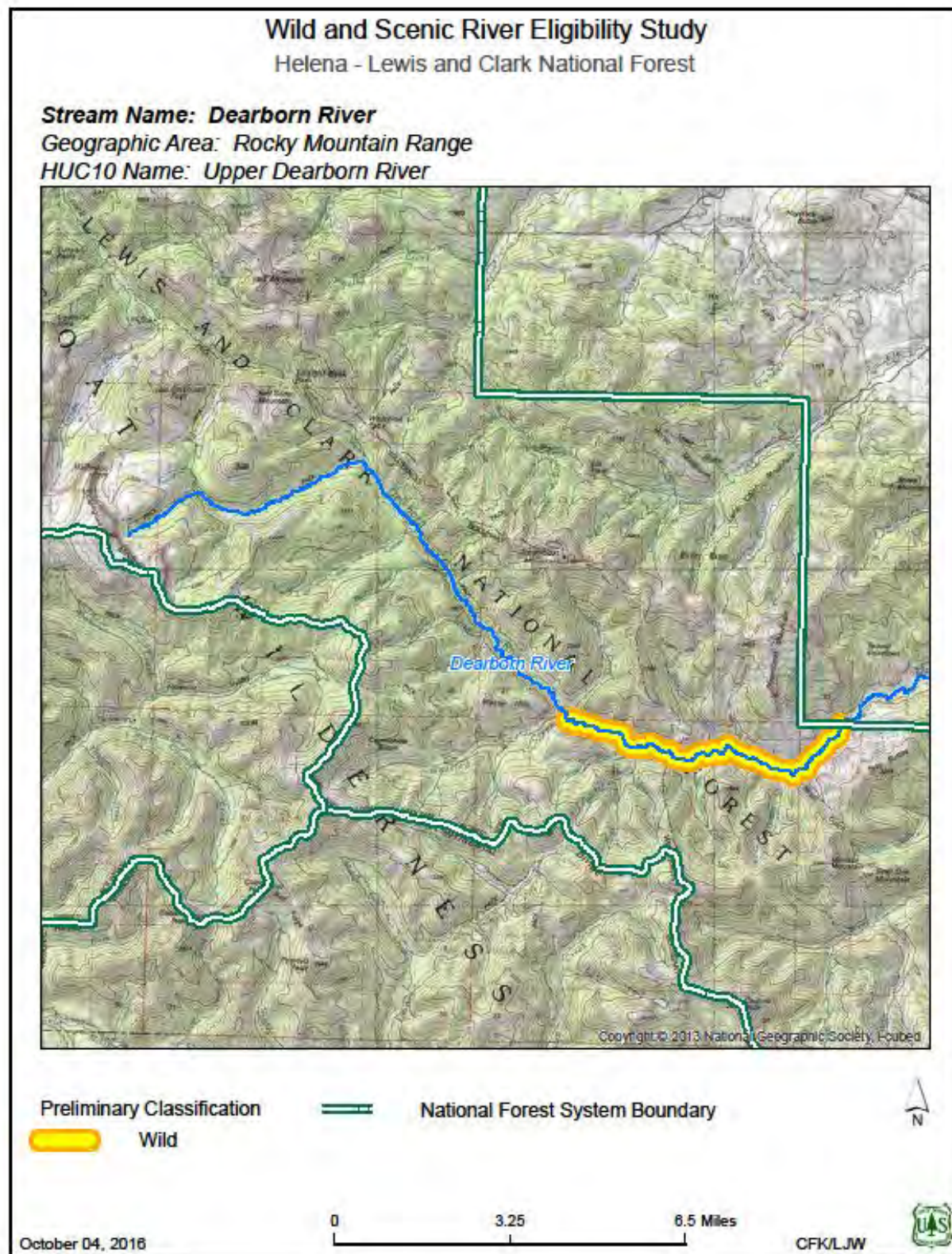




## Dearborn River

Dearborn River	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to the Whitetail Creek.
Miles of each segment	6.5 miles
Potential Classification	Wild
Location	Geographic area: Rocky Mountain Range HUC 10: Upper Dearborn River Beginning Point: T17N R7W Section 6
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	There is spectacular scenery in Devils Glen area, which is located within the in the lower section of the river, just inside the forest boundary.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

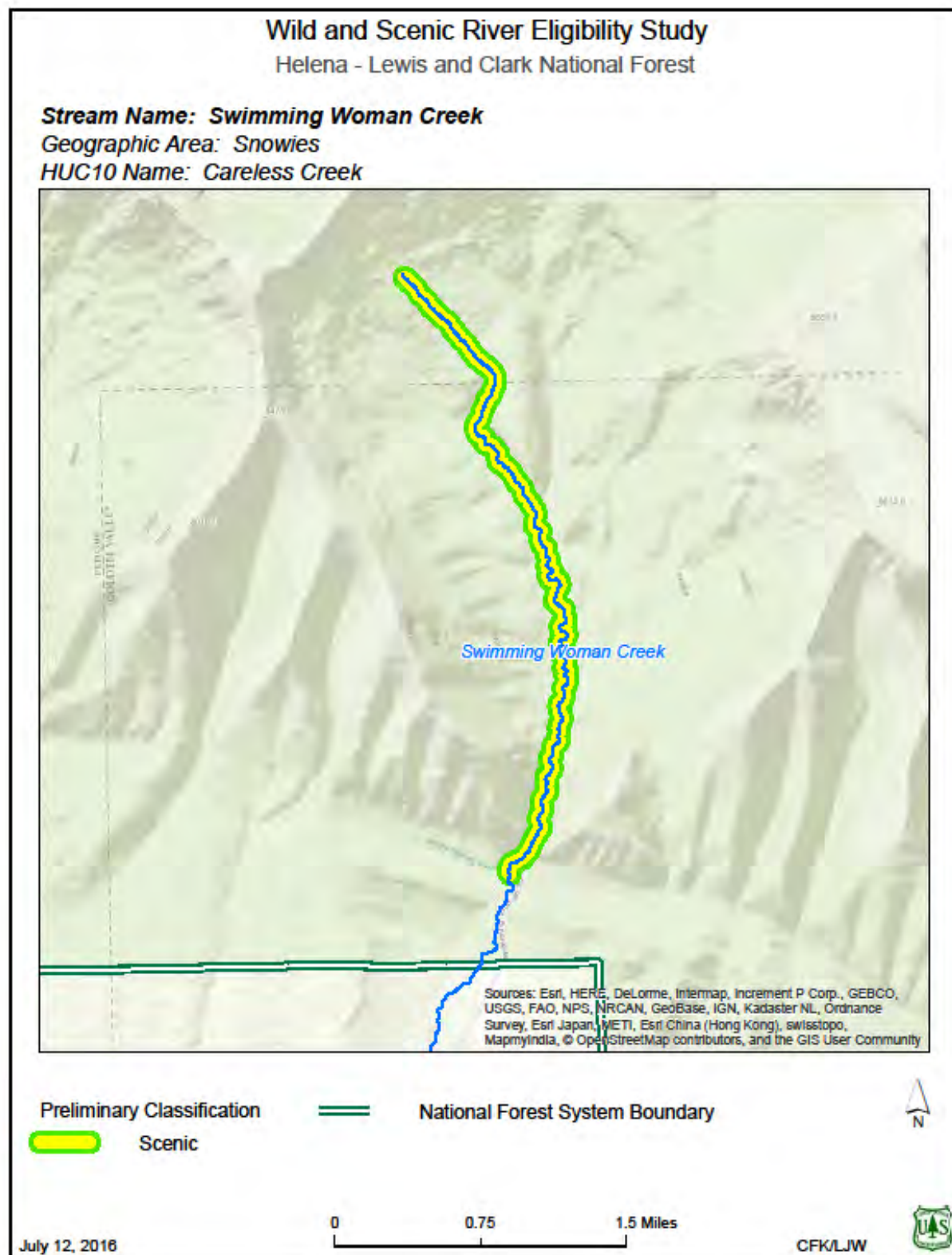




## Snowies Geographic Area

### Swimming Woman Creek

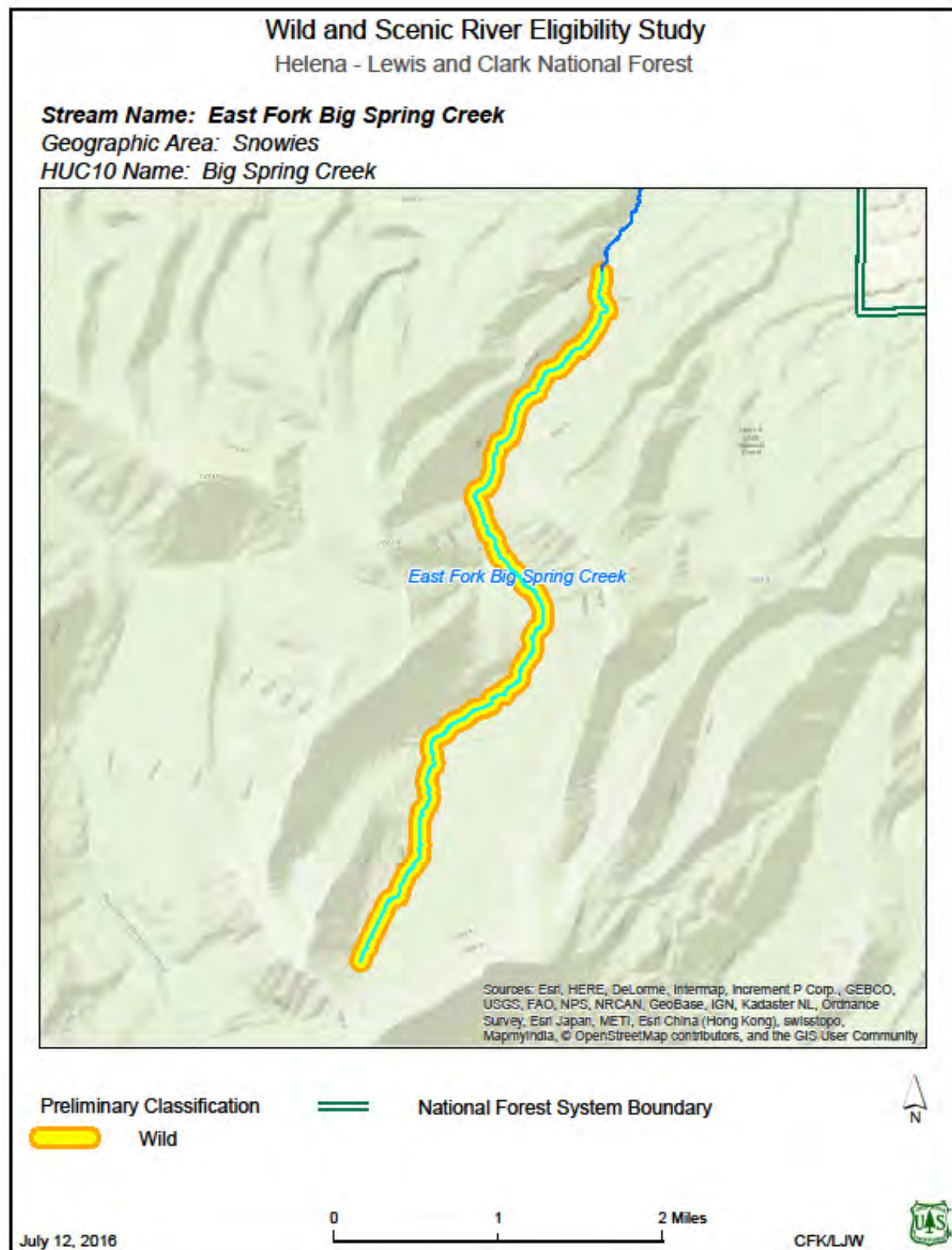
Swimming Woman Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Scenery, Geology
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters
Miles of each segment	3.9 miles
Potential Classification	Scenic
Location	Geographic area: Snowies HUC 10: Careless Creek Beginning Point: T11N R19E Section 16
County(ies)	Golden Valley/Fergus
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	The scenic quality of this area is tied directly to the geologic features located here, which are spectacular and national in significance.
Recreation	No ORV
Geologic	Swimming Woman Creek flows out of a very unique geologic feature called a Pseudo(false)-Cirque formed by Landslide Sapping. This is a process resulting from the head ward erosion of a canyon consisting of hard overlying rocks (Madison Limestone) over softer material (Wolsey Shale). As the lower rock are eroded away the upper rocks slides into the canyon and are carried away by the creek. The entrance to the canyon is very narrow and broadens out into a large steep-walled amphitheater. The canyon is the best known example anywhere in North America and the world.
Fisheries	No ORV
Wildlife	No ORV
Cultural	No ORV
Botanical/ Natural	No ORV
Natural Other	No ORV



## East Fork Big Spring Creek

East Fork Big Spring Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From south end of Section 33 (where tributary splits off) to headwaters
Miles of each segment	5.3 miles
Potential Classification	Wild
Location	Geographic area: Snowies HUC 10: Big Spring Creek (1004010309) Beginning Point:
County(ies)	Fergus County
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	The most secure population of WCT in the Snowy Mountain Range and potentially the Judith River Basin.
Wildlife	No ORV.
Cultural	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.

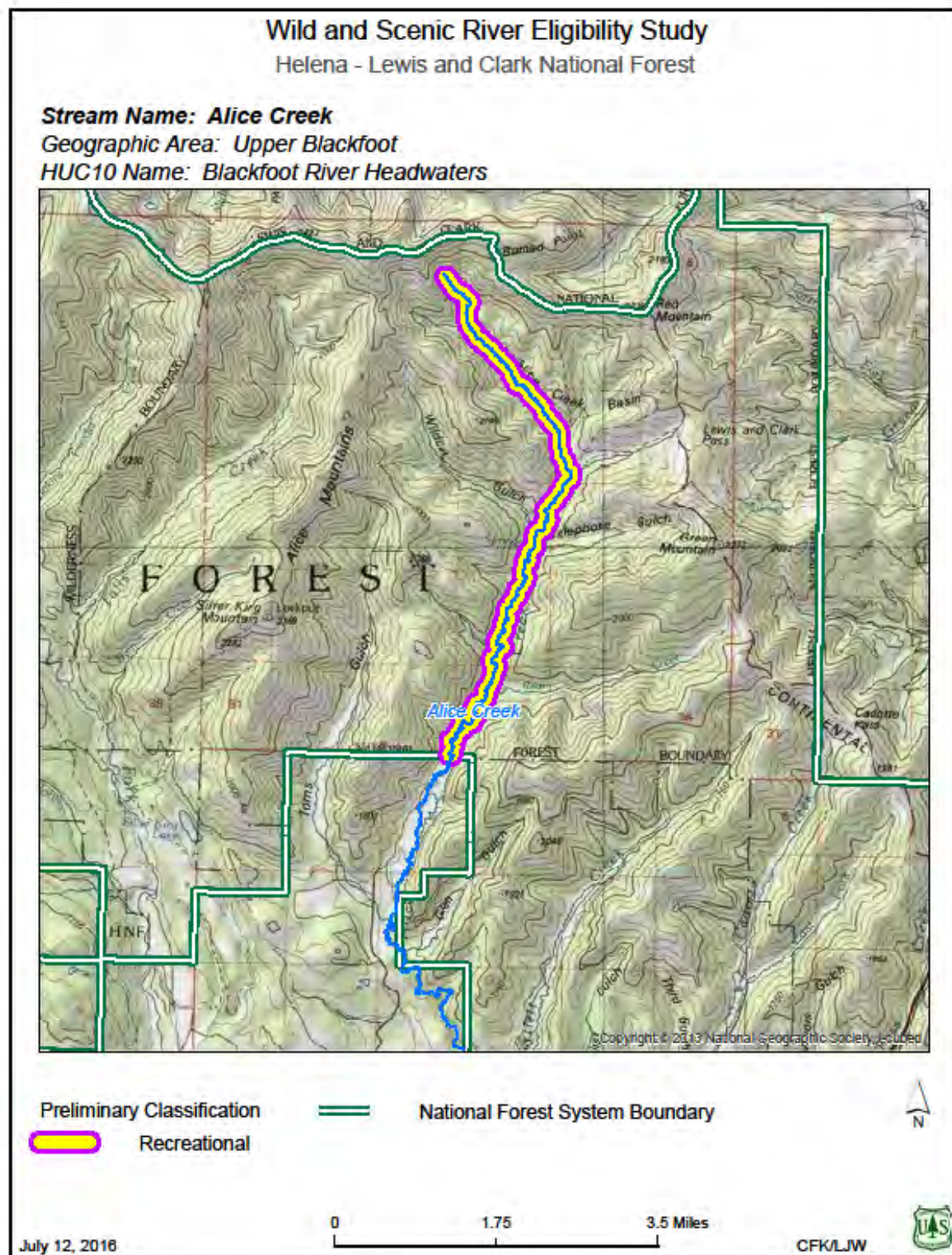




## Upper Blackfoot Geographic Area

### Alice Creek

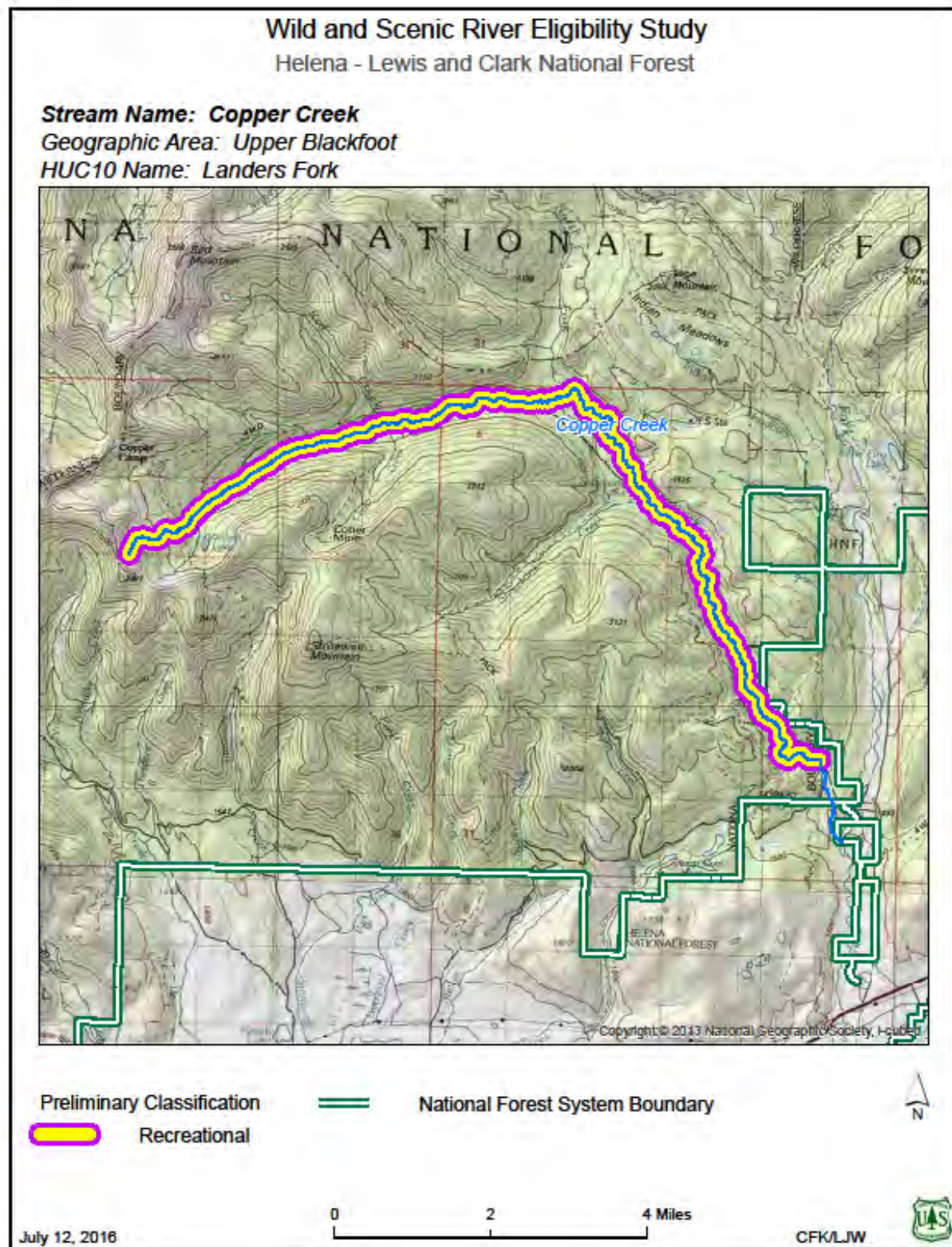
Alice Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Cultural
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters.
Miles of each segment	7.0 miles
Potential Classification	Recreational
Location	Geographic area: Upper Blackfoot HUC 10: Blackfoot River Headwaters Beginning Point: T16N R7W Section 33
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	No ORV.
Wildlife	No ORV.
Cultural	This stream is included in the Alice Creek Historic District which is registered on the National Register of Historic Places. The area includes high cultural site concentrations and was used repeatedly as a travel corridor for crossing the divide to hunting grounds east of the mountains. The travel corridor was also used by Captain Lewis on his return journey and the trail is a part of the Lewis & Clark National Historic Trail.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



## Copper Creek

Copper Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters.
Miles of each segment	14.0 miles
Potential Classification	Recreational
Location	Geographic area: Upper Blackfoot HUC 10: Landers Fork Beginning Point: T15N R8W Section 26
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	Yes
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	This stream and the tributary of Snowbank Creek are major sources of bull trout spawning and rearing habitat for the entire Blackfoot River drainage.
Wildlife	No ORV.
Historic/ Pre-historic	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



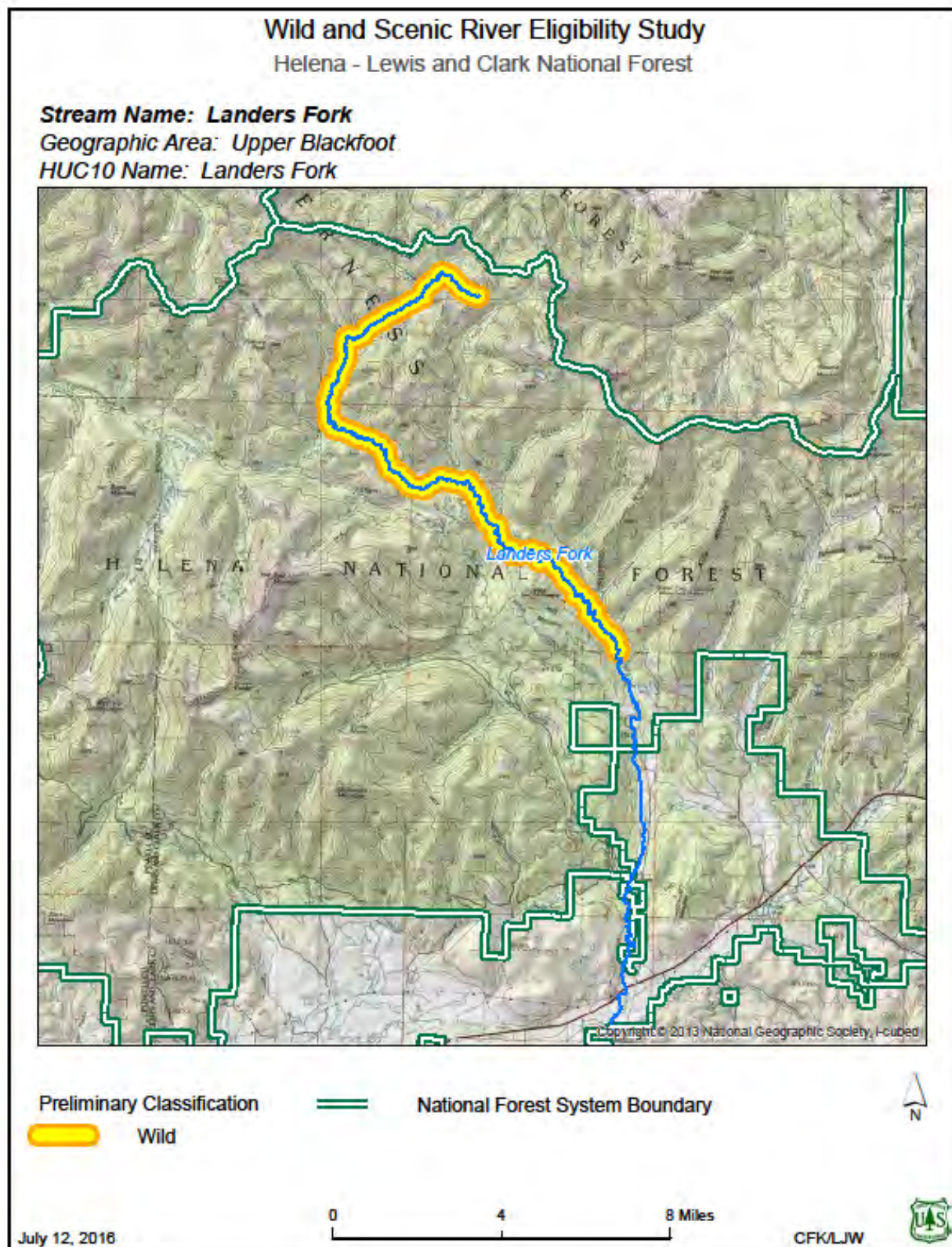






## Landers Fork

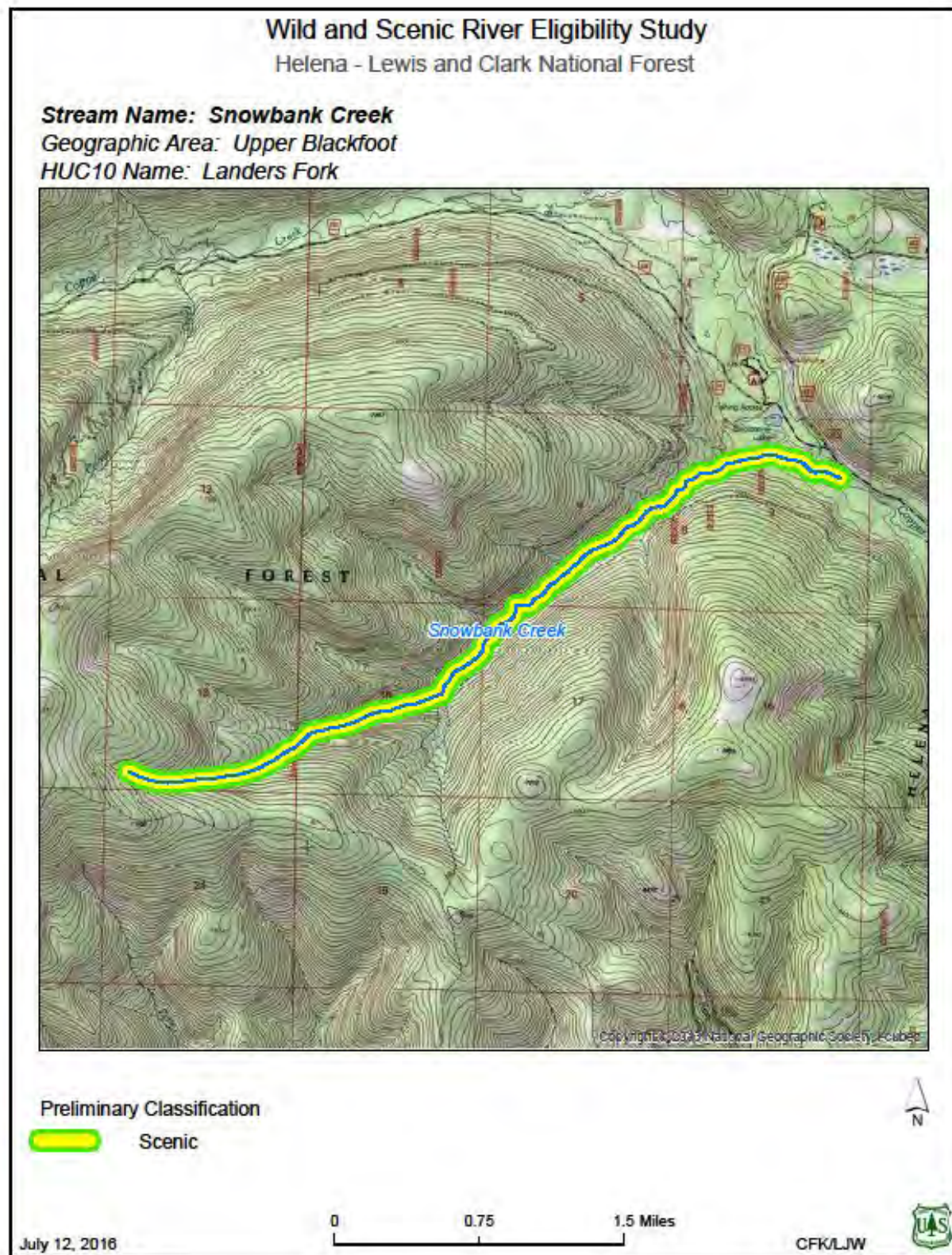
Landers Fork	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From FS boundary to headwaters.
Miles of each segment	18.8 miles
Potential Classification	Wild
Location	Geographic area: Upper Blackfoot HUC 10: Landers Fork Beginning Point: T16N R8W Section 36
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	This stream is one of the top sources of bull trout spawning and rearing habitat for the entire Blackfoot River drainage.
Wildlife	No ORV.
Historic/ Pre-historic	No ORV on Forest Service.
Botanical/ Natural	No ORV.
Natural Other	No ORV.



## Snowbank Creek

Snowbank Creek	
Is the River free flowing? Yes or No	Yes
Potential Outstanding Remarkable Value(s)	Fish
Area of Comparison	State of Montana
Eligible Segments	From confluence with Copper Creek to headwaters.
Miles of each segment	4.4 miles
Potential Classification	Scenic
Location	Geographic area: Upper Blackfoot HUC 10: Blackfoot River- Keep it Cool Creek Beginning Point: T15N R8W Section 9
County(ies)	Lewis and Clark
Identified in Previous Eligibility Studies. Yes/No	No
Resource Description	
Scenery	No ORV.
Recreation	No ORV.
Geologic	No ORV.
Fisheries	This stream contains the highest density of bull trout spawning in the entire Blackfoot River basin.
Wildlife	No ORV.
Historic/ Pre-historic	No ORV.
Botanical/ Natural	No ORV.
Natural Other	No ORV.





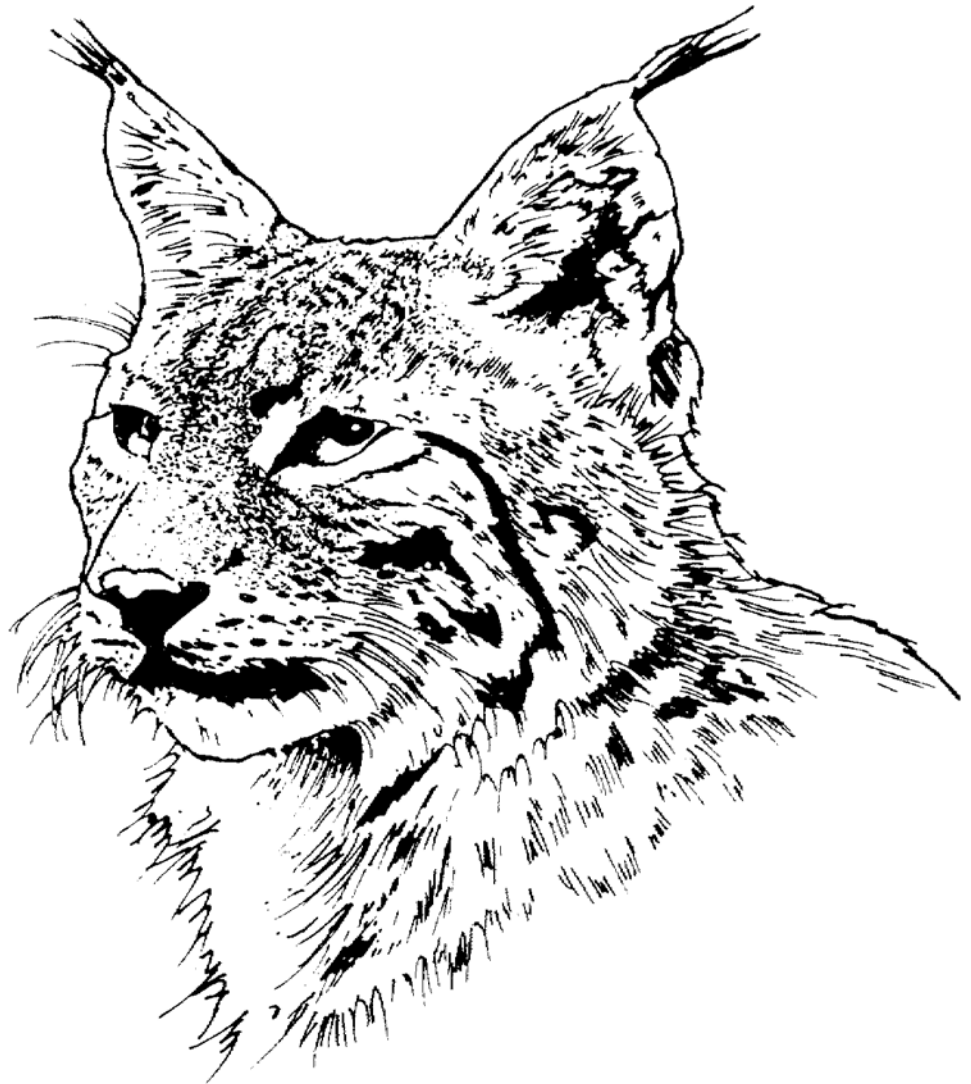


USDA  
Forest  
Service

National Forests in  
Montana, and parts of  
Idaho, Wyoming, and  
Utah

March 2007

# Northern Rockies Lynx Management Direction Record of Decision



The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal employment opportunity provider and employer.



# Record of Decision

## Table of contents

Summary of the decision.....	1
Background .....	1
Purpose and need .....	2
Risks to lynx and lynx habitat .....	2
Public involvement.....	4
Issues .....	5
Alternatives considered in detail .....	5
Other management direction considered .....	7
The decision.....	7
Management direction related to vegetation .....	8
Objectives for vegetation management.....	8
Standards and guidelines relating to quantity of winter snowshoe hare habitat.....	8
Standards and guidelines relating to quality of winter snowshoe hare habitat .....	11
Standards and guidelines relating to denning habitat .....	14
Consideration of fuel treatment projects .....	18
FWS findings related to the vegetation management direction.....	21
Management direction related to grazing.....	21
Management direction related to human uses.....	22
Over-the-snow recreation .....	22
Developed recreation.....	25
Minerals and energy .....	26
Forest roads.....	26
Management direction related to linkage areas.....	27
Use of standards and guidelines .....	28
Where to apply the decision .....	29
Incorporation of terms and conditions.....	29
Consideration of conservation recommendations.....	30
Canada lynx recovery outline.....	31

## Record of Decision - Table of contents

Findings required by laws, regulations and policy .....	35
National Environmental Policy Act .....	35
National Forest Management Act .....	37
Endangered Species Act .....	42
National Historic Preservation Act .....	43
Clean Air Act .....	43
Clean Water Act .....	43
Invasive Species .....	43
Environmental justice .....	43
Prime Farmland, Rangeland and Forest Land .....	44
Equal Employment Opportunities, Effects on Minorities and Women .....	44
Wetlands and Floodplains .....	44
Other policies .....	44
Implementation and appeal provisions .....	44
Further information and contact person .....	45
References .....	49
Attachment 1 – Northern Rockies Lynx Management Direction	

## Summary of the decision

We have selected Alternative F, Scenario 2 as described in the Northern Rockies Lynx Management Direction Final Environmental Impact Statement (FEIS) (pp. 35 to 40), with modifications. We modified Alternative F, Scenario 2 and incorporated the U.S. Fish and Wildlife Service (FWS) Terms and Conditions (USDI FWS 2007), where applicable, into the management direction – see Attachment 1- hereafter called the *selected alternative*. We determined the selected alternative provides direction that contributes to conservation and recovery of Canada lynx in the Northern Rockies ecosystem, meets the Purpose and Need, responds to public concerns, and is consistent with applicable laws and policies. In the FEIS we analyzed six alternatives in detail and two scenarios for Alternative F. Of those, we determined Alternative F Scenario 2 is the best choice. With this decision, we are incorporating the goal, objectives, standards, and guidelines of the selected alternative into the existing plans of all National Forests in the Northern Rockies Lynx Planning Area – see Figure 1-1, FEIS, Vol. 1 Tables 1-1 and 1-2.

The direction applies to mapped lynx habitat on National Forest System land presently **occupied** by Canada lynx, as defined by the *Amended Lynx Conservation Agreement between the Forest Service and the FWS* (USDA FS and USDI FWS 2006). When National Forests are designing management actions in **unoccupied** mapped lynx habitat they should consider the lynx direction, especially the direction regarding linkage habitat. If and when those National Forest System lands become occupied, based upon criteria and evidence described in the Conservation Agreement, the direction shall then be applied to those forests. If a conflict exists between this management direction and an existing plan, the more restrictive direction will apply.

The detailed rationale for our decision, found further in this document, explains how the selected alternative best meets our decision criteria. Those decision criteria are: 1) meeting the Purpose and Need to provide management direction that conserves and promotes the recovery of Canada lynx while preserving the overall multiple use direction in existing plans; 2) responding to the issues; and 3) responding to public concerns.

## Background

The FWS listed Canada lynx as a threatened species in March 2000, saying the main threat was “the lack of guidance for conservation of lynx and snowshoe hare habitat in National Forest Land and Resource Plans and BLM Land Use Plans” (USDI FWS 2000a). Following the listing, the Forest Service (FS) signed a Lynx Conservation Agreement with the FWS in 2001 to consider the Lynx Conservation Assessment and Strategy (LCAS) during project analysis, and the FS agreed to not proceed with projects that would be “likely to adversely affect” lynx until the plans were amended. The Conservation Agreement (CA) was renewed in 2005 and added the concept of occupied mapped lynx habitat. In 2006 the CA was amended to define occupied habitat and to

list those National Forests that were occupied. In 2006 it was also extended for 5 years (until 2011), or until all relevant forest plans were revised to provide guidance necessary to conserve lynx (USDA FS and USDI FWS 2000, 2005, 2006a, 2006b). The plan direction in this decision fulfills our agreement to amend the plans. The management direction provided in this decision is based upon the science and recommendations in:

- *Ecology and Conservation of Lynx in the United States* (Ruggiero et al 2000), which summarizes lynx ecology;
- *Lynx Conservation Assessment and Strategy* (LCAS) (Ruediger et al 2000), which recommends conservation measures for activities that could place lynx at risk by altering their habitat or reducing their prey; and
- Numerous publications cited in the FEIS and found listed in the *References* section of this ROD and in the FEIS, pp. 381 to 396.

### **Purpose of and Need for action**

The Purpose and Need is to incorporate management direction in land management plans that conserves and promotes recovery of Canada lynx, by reducing or eliminating adverse effects from land management activities on National Forest System lands, while preserving the overall multiple-use direction in existing plans (FEIS, Vol. p. 1).

### **Risks to lynx and lynx habitat**

The overall goals of the LCAS were to recommend lynx conservation measures, provide a basis for reviewing the adequacy of Forest Service land and resource management plans with regard to lynx conservation, and to facilitate section 7 conferencing and consultation under ESA. The LCAS identified a variety of possible risks to lynx and lynx habitat.

The LCAS identified *risk factors affecting lynx productivity* (pp. 2-2 to 2-15) as:

- ♦ Timber management
- ♦ Wildland fire management
- ♦ Livestock grazing
- ♦ Recreational uses
- ♦ Forest backcountry roads and trails
- ♦ Other human developments

These are the typical types of activities conducted on federal land administered by the FS, and the FS has the authority to manage and regulate them. As such, the management direction analyzed in the Lynx FEIS and incorporated into the forest plans with this Record of Decision (ROD) focus on these types of activities.

The LCAS identified *risk factors affecting mortality* (pp. 2-15 to 2-17) as:

- ♦ Trapping
- ♦ Shooting
- ♦ Predator control
- ♦ Highways
- ♦ Predation by other species

These factors can directly cause lynx deaths. Trapping of lynx is no longer permitted in the planning area, although incidental trapping of lynx could still occur. Incidental or illegal shooting can also occur, but trapping and hunting is regulated by state agencies. Predator control activities are conducted by USDA Wildlife Services. Since the factors of trapping shooting and predator control are outside the authority of the FS to manage or regulate, this ROD does not include management direction related to them.

Highways (generally high-speed, two lane) are a known source of direct mortality (LCAS, pp. 2-16 to 2-17). Depending on the situation, this risk factor may fall under the authority of the FS. Therefore, it is addressed in the FEIS, and management direction concerning highways is incorporated into the Forest Plans through this ROD.

Other predators may affect lynx. Lynx have a competitive advantage in places where deep, soft snow tends to exclude predators in mid-winter, the time when prey is most limiting. Certain activities, such as certain types of winter recreation, may provide access to other predators (LCAS, pp. 2-6 to 2-15). The FEIS and ROD addresses this concern.

The LCAS identified *risk factors affecting movement* (pp. 2-17 to 2-19) as:

- ♦ Highways and associated development
- ♦ Private land development

Lynx are known to disperse over wide areas. Highways and the developments associated with them may affect lynx movement (LCAS, p. 2-17). The FS has only limited authority to address highways, and has no authority to manage activities on private land. Based on the limited authority the FS has in this area, only a few guidelines address these risk factors.

After the LCAS was issued the FWS published a Clarification of Findings in the *Federal Register* (FEIS, Vol. 1, Appendix P), commonly referred to as the Remand Notice. In the Remand Notice the FWS states, “We found no evidence that some activities, such as forest roads, pose a threat to lynx. Some of the activities suggested, such as mining and grazing, were not specifically addressed [in the Remand Notice] because we have no information to indicate they pose threats to lynx” (p. 40083). Further on in the Remand Notice they state, “Because no evidence has been provided that packed snowtrails facilitate competition to a level that negatively affects lynx, we do not consider packed snowtrails to be a threat to lynx at this time” (p. 40098). In regards to timber harvest the FWS states, “Timber harvesting can be beneficial, benign, or detrimental to lynx depending on harvest methods, spatial and temporal specifications, and the inherent vegetation potential of the site. Forest practices in lynx habitat that result in or retain a dense understory provide good snowshoe hare habitat that in turn provides good foraging habitat for lynx” (p. 40083). These findings by FWS narrow the focus from the concerns first published in the LCAS (discussed above) about what management direction is needed to maintain or improve Canada lynx habitat. We considered this information in the development of the selected alternative, and in our decision.

## Public involvement

We involved the public in the development of the plan direction from the very beginning. In order to determine the scope of the public's interest in developing lynx direction the FS and BLM started with a notice published in the *Federal Register* (Vol. 66, No. 176, pp. 47160 to 47163) on September 11, 2001. Originally, the scoping period was scheduled to end on October 26, 2001, but we extended it to December 10, 2001. The FS and BLM gave people more time to comment, both in response to several requests for extensions, and because of the general disruption stemming from the September 11<sup>th</sup> terrorist attacks. In December 2006, the BLM elected to not be a cooperating agency in this planning effort and to undertake changes to BLM plans through a separate planning process.

We created an official website at [www.fs.fed.us/r1/planning/lynx.html](http://www.fs.fed.us/r1/planning/lynx.html). The website continues to provide information, including the information used to develop the Proposed Action, the DEIS, and FEIS.

During scoping we held numerous open-house meetings to provide a better understanding of the lynx proposal and to gain an understanding of public issues and concerns (FEIS, Vol. 1, p. 18). We mailed out more than 6,000 letters about the proposal and upcoming meetings to a mailing list of people interested in land management issues. By December 17, 2001 we had received 1,890 public responses to the scoping notice. We then evaluated and summarized those responses in a report entitled *Summary of Public Comments* (see the *Scoping* section of the Project Record). Responses received after December 17, 2001, but before the release of the Draft Environmental Impact Statement (DEIS) in January 2004 were also considered. A summary of these comments can also be found in the *Scoping* section of the Project Record. In mid-May 2002 we mailed an eight-page update to the more than 2,000 addresses of those who responded to the scoping notice.

We decided to prepare an EIS because of the level of interest expressed during scoping. On August 15, 2002, we published a Notice of Intent to prepare an Environmental Impact Statement in the *Federal Register* (Vol. 67, No. 158, pp. 53334 to 53335). There were five responses to the Notice of Intent, which we also considered.

On January 16, 2004, a Notice of Availability of the DEIS was published in the *Federal Register* (Vol. 69, No. 11, p. 2619). This notice began a 90-day public comment period. At that time, we sent copies of the DEIS (either paper or CD versions), or the summary of the DEIS to a variety of interested parties (FEIS, Vol. 1 p 19). The documents are also available on the web site: [www.fs.fed.us/r1/planning/lynx.html](http://www.fs.fed.us/r1/planning/lynx.html).

We hosted open-house meetings in February and March of 2004 to provide the public with a better understanding of the DEIS and its alternatives. Over 380 people attended the open houses which were held in four states and 25 communities. We accepted public comments on the DEIS either sent through the mail or via E-mail. The public comment period ended on April 15, 2004, with the agency receiving well over 5,000



comments. We used those comments, as well as late comments, to help formulate Alternative F, to help clarify and add to the analysis, to correct errors in the DEIS, and to update the FEIS. We responded to all of the comments on the DEIS in the Response to Comments (FEIS, Vol. 2).

## Issues

As a result of the public participation process; review by other federal, state, tribal, and local government agencies; and internal reviews, we identified five primary issues, which are described in detail in the FEIS, Vol. 1, Chapter 2. The issues were used as a basis for developing the management direction in the alternatives, and were used to analyze effects. The issues are:

- 1. *Over-the-snow recreation.*** The effects of limiting the growth of designated over-the-snow routes on opportunities for over-the-snow recreation.
- 2. *Wildland fire risk.*** The effects of the management direction on the risks to communities from wildland fire.
- 3. *Winter snowshoe hare habitat in multistoried forests.*** The effect on lynx of allowing projects in winter snowshoe hare habitat in multistoried forests.
- 4. *Precommercial thinning.*** The effects of limiting precommercial thinning on restoring tree species and forest structures that are declining.
- 5. *FWS Remand decision.*** The appropriate level of management direction applied to activities that the FWS remand notice found were not a threat to lynx populations.

## Alternatives considered in detail

***Alternative A, the No Action Alternative.*** Analyzing a no-action alternative is a requirement of NEPA at 40 CFR 1508.14(d), and of FS planning procedures. The analysis of the effects of Alternative A in the FEIS considers the effects of the forest plans as they currently exist, including any previous amendments. In this case, “no action” means no amendment to the already existing plans, and no additional specific direction to conserve Canada lynx. While the FS has been following the Conservation Agreements signed with the FWS and has considered the LCAS when evaluating projects, the LCAS measures have not been incorporated as plan direction. A decision to adopt Alternative A would not adopt the measures of the LCAS into the plans, but also would not void the existing Conservation Agreements or the consultation requirements of ESA. A decision to not adopt some of the lynx management direction in any of the action alternatives would have been a decision to select a part of Alternative A.

***Alternative B, the Proposed Action.*** The Proposed Action was developed from conservation measures recommended in the LCAS. (See Appendix A in the FEIS, pp. 401 to 438 for a crosswalk from the LCAS, to the proposal as written in the scoping letter; the Proposed Action, Alternative B, found in the Draft and Final EISs; and

Alternative F in the FEIS.) Alternative B addresses activities on National Forest System lands that can affect lynx and their habitat. The exact language of the goal, objectives, standards, and guidelines for Alternative B and all the other action alternatives can be found in the FEIS (Table 2-1, pp. 41 to 69).

**Alternative C.** Alternative C was designed to respond to issues of over-the-snow recreation management and foraging habitat in multistoried forests, while providing a level of protection to lynx comparable to Alternative B, the Proposed Action. Alternative C would add direction to the plans similar to the LCAS, but would have fewer restrictions on new over-the-snow trails and more restrictions on management actions in winter snowshoe hare habitat in multistoried forests. The exact language of the goal, objectives, standards, and guidelines for Alternative C and all the other action alternatives can be found in the FEIS (Table 2-1, pp. 41 to 69).

**Alternative D.** Alternative D was designed to address the issues of managing over-the-snow recreation and multistoried forests, similar to Alternative C. Alternative D also allows some precommercial thinning in winter snowshoe hare habitat, while still contributing to lynx conservation. Alternative D would add direction to the plans similar to the LCAS, but having fewer restrictions on new over-the-snow trails and precommercial thinning, and more restrictions than the LCAS (Alternative B) on management actions in winter snowshoe hare habitat in multistoried forests, but less than Alternative C. The exact language of the goal, objectives, standards, and guidelines for Alternative D and all the other action alternatives can be found in the FEIS (Table 2-1, pp. 41 to 69).

**Alternative E, the DEIS preferred alternative.** Alternative E addresses the issue of wildland fire risk while contributing to lynx conservation. It also responds to statements made in the Remand Notice (USDI FWS, 2003) that FWS has no information to indicate grazing or snow compaction are threats to lynx at this time. This was done by changing the grazing and human uses standards to guidelines. Alternative E would add direction to the plans similar to the LCAS, but has fewer restrictions on new over-the-snow trails and on fuel reduction projects proposed in a collaborative manner, and more restrictions on management actions in winter snowshoe hare habitat in multistoried forests. The exact language of the goal, objectives, standards, and guidelines for Alternative E and all the other action alternatives can be found in FEIS (Table 2-1, pp. 41 to 69).

**Alternative F, the FEIS preferred alternative.** Alternative F was developed from public comments on the DEIS and by pulling together parts of the other alternatives. Since it was developed from the other alternatives, the effects of Alternative F is within the scope of the effects of the alternatives analyzed in the DEIS.

Alternative F addresses many comments about problems and concerns with Alternatives E, the DEIS preferred alternative. In particular many people and FWS felt Alternative E would not meet the purpose and need because it did not provide the

regulatory mechanisms to adequately address lynx needs. Alternative F was designed to provide adequate regulatory mechanisms for those risk factors found to be a threat to lynx populations – specifically those factors related to the quantity and quality of lynx habitat as discussed in the FEIS, Vol. 1, section *Management direction considered*.

Alternative F addresses comments about where to apply the management direction. Many comments suggested the management direction should only be applied to occupied habitat. Therefore, Alternative F is evaluated under two scenarios: (1) management direction would be incorporated into all forest plans and would *apply to all mapped lynx habitat*, whether or not occupied; and (2) management direction would be incorporated into all forest plans but would only *apply to occupied habitat*. Under Scenario 2, the direction should be “considered” for unoccupied units, but would not have to be followed until such time as lynx occupy the unit. The Nez Perce, Salmon-Challis, Beaverhead-Deerlodge, Bitterroot, Ashley, and Bighorn NFs, and the disjunct mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs are unoccupied based on the best scientific information available at this time (USDA FS, USDI FWS 2006a).

### **Other management direction considered**

Comments on the DEIS identified a variety of suggestions for management direction. Some of the suggestions were incorporated into the selected alternative, others were not. The FEIS, Vol. 1 pp. 71-102 provides a thorough discussion of these comments and our considerations. The following section includes discussion of some these comments and how they were considered, but not all of the suggestions considered.

### **The decision**

The management direction in Alternative F, Scenario 2 modified (referred from now on as the *selected alternative*, see - Attachment 1) is amended into all Forest Plans in the planning area. The management direction incorporates the terms and conditions FWS issued in their biological opinion (USDI FWS 2007). This management direction includes a goal, objectives, standards, and guidelines related to all activities (ALL), vegetation management (VEG), grazing management (GRAZ), human uses (HU), and linkage (LINK). *Goals* are general descriptions of desired results; *objectives* are descriptions of desired resource conditions; *standards* are management requirements designed to meet the objectives; and *guidelines* are management actions normally taken to meet objectives. Guidelines provide information and guidance for project and activity decision-making (FEIS, Vol. 1 p. 8). The Forest Service and FWS developed the selected alternative in a collaborative manner (Project File/Coordination/with FWS, and Project File/ Alternatives/FEIS alternatives).

The selected alternative provides a balance of meeting the purpose and need, and addressing the five primary issues, including other public comments. Alternative B does not provide the management direction necessary for winter snowshoe hare habitat

in multistoried forests. Alternative C, may be best for lynx, but does not address any other issues. Alternative D addresses the need to restore tree species in decline, but we have determined it may allow too much activity in winter snowshoe hare habitat and result in more extensive adverse effects. Alternative E address wildfire risk to communities, but based on our analysis and comments from FWS and the public, may not provide the necessary direction to contribute to conservation and recovery of lynx.

We determined, through our analysis and with concurrence from FWS, the selected alternative contributes to conservation and recovery of lynx, while allowing some activities to occur in lynx habitat that may have some adverse effects on lynx. We determined it was important and acceptable to restore tree species in decline and address wildland fire risks to communities. This decision allows some possible adverse effects on 6.5 percent of lynx habitat (through a combination of fuels treatment in the wildland urban interface (WUI) and precommercial thinning). However, all vegetative standards remain applicable to 93.5 percent of lynx habitat.

The following describes the risk factors, what the LCAS proposed (Alternative B), issues related to the proposed action, what Alternative E (the DEIS preferred alternative) included, comments we received on the DEIS, consideration of new information, and finally what was incorporated into the selected alternative and why.

### **Management direction related to vegetation**

Lynx require certain habitat elements to persist in a given area. Lynx productivity is highly dependent on the quantity and quality of winter snowshoe hare habitat. Winter snowshoe hare habitat may be found in dense young regenerating forests – where the trees protrude above the snowline and in multistoried forests where limbs of the overstory touch the snowline, in addition to shorter understory trees that provide horizontal cover. Certain activities, such as timber harvest, prescribed burning and wildfires, can affect the amount and distribution of these habitat elements, which can in turn affect lynx productivity. Timber harvest can be beneficial, benign, or detrimental depending on the harvest method, the spatial and temporal occurrence on the landscape and the inherent vegetation potential of the site (FEIS, Vol. 1, Appendix P).

### **Objectives for vegetation management**

Objectives define desired conditions for lynx habitat. The LCAS identified four primary objectives which are reflected in Alternative B as *Objectives VEG O1, VEG O2, VEG O3, and VEG O4*. These objectives essentially remain the same among all alternatives. Objectives VEG O1, VEG O2 and VEG O4 were clarified in the selected alternative based on comments on the DEIS, but their intent is the same as the in LCAS.

### **Standards and guidelines relating to quantity of winter snowshoe hare habitat**

**Standard VEG S1.** In order to provide a distribution of age classes, the LCAS recommended that an lynx analysis unit (LAU) (an area the size of a female lynx home range) not have more than 30 percent of the lynx habitat in an unsuitable condition, and

---

if an LAU was at 30 percent then vegetation management projects should not create more. Lynx habitat in an unsuitable condition includes those forests in a stand initiation structural stage that are too short to provide winter snowshoe hare habitat. These conditions are created by stand-replacing wildfires, prescribed burns that remove all of the vegetation, or regeneration timber harvest. This recommendation is reflected in Alternative B *Standard VEG S1*.

Some people felt the 30 percent criterion was too high and others said it was too low based on how fires burn in lynx habitat. In addition, some people felt that constraining the 30 percent criterion to a single LAU was too restrictive, as fires burn across vast areas. Fire is the most common disturbance in lynx habitat. Generally, large stand replacing fires burn every 40 to 200 years and smaller low intensity fires burn in the intervals between stand replacing fires (FEIS, Vol. 1, p. 72 and 213-214). The 30 percent criterion was based on a way to maintain lynx habitat over time (Brittel et al. 1989).

None of the alternatives change the 30 percent criterion. However, Alternatives C, D, and E change the area the standard would be considered from an LAU to a larger landscape. Alternatives C and E apply the standard to an LAU or in a combination of immediately adjacent LAUs; Alternative D applies the standard to a subbasin or isolated mountain range. Some people liked the idea of applying the standard to a larger area, others did not. In their comments on the DEIS FWS recommended the standard be applied to a single LAU in order to maintain a good distribution of lynx habitat at the scale of a lynx home range.

The selected alternative applies the management direction to a single LAU to ensure a variety of structural stages are provided within the home range. In addition, the selected alternative was reworded to clarify what “unsuitable habitat” entails and what types of vegetation projects create this condition.

**Standard VEG S2.** The LCAS also recommended that timber harvest not change more than 15 percent of lynx habitat to an unsuitable condition (stand initiation structural stage that is too short to provide for winter snowshoe hare habitat) over a decade. The purpose of this standard was to limit the rate of management induced change in lynx habitat (FEIS p. 74). This recommendation is reflected in Alternative B *Standard VEG S2*.

In 2003, the effect timber harvest historically had on creating “unsuitable habitat” on Forest Service lands in Region 1 (Hillis et al. 2003) was analyzed. The analysis was based on hydrologic unit codes (HUC) (similar to the size of a lynx home range). This analysis found only 2.5 percent of the HUCs exceeds the 15 percent criterion. Since this criterion was rarely exceeded in the past, and the amount of regeneration harvest the agency does now has been dramatically reduced over the past decade (Project File/Analysis/Vegetation/FEIS/Data), Standard VEG S2 was changed to Guideline VEG G6 in Alternative C, and dropped as a standard or guideline in Alternatives D and E.

FWS comments on the DEIS said that dropping Standard VEG S2 could allow potentially negative effects to lynx to accumulate. Removal of the standard could result in reducing the amount of lynx habitat over a short period of time. Based on these comments, Standard VEG S2 was included in the selected alternative. In addition, the standard was reworded to clarify that it only applies to timber management practices that regenerate a forest (clearcut, seed tree, shelterwood, group selection).

**Guideline VEG G1.** The LCAS also recommended creating forage (winter snowshoe hare habitat) where it was lacking. *This is reflected as Guideline VEG G1 in Alternative B.* This guideline is retained in the selected alternative. The wording clarifies that the priority areas for creating forage should be in those forests that are in the stem-exclusion, closed canopy structural stage to enhance habitat conditions for lynx and their prey. Basically it says we should focus regeneration efforts in pure lodgepole stands, with little understory, especially where forage is lacking.

**Other related comments.** Other comments we received on the DEIS relating to the amount or spatial distribution of winter snowshoe hare habitat were in regards to including a standard to limit type conversion, and limiting the size of clearcuts and other regeneration harvest units (FEIS Vol. 1 p. 75-76 and FEIS Vol. 2 27-27, 56-57, 59-60). Neither of these standards were recommended in the LCAS.

Objectives VEG O1, VEG O2, VEG O3 and VEG O4 describe the desired conditions of lynx habitat and all are consistent with the intent to minimize habitat conversions. Projects and activities should be designed to meet or move towards objectives; therefore a standard for type conversion was not necessary.

Openings created by even-aged harvest are normally 40 acres or less. Creating larger openings requires 60-day public review and Regional Forester approval, with some exceptions (R1 Supplement Forest Service Handbook 2400-2001-2; R2 Supplement 2400-99-2). Koehler (1990) speculated that openings created by regeneration harvest, where the distance-to-cover was greater than 325 feet, might restrict lynx movement and use patterns until the forest re-grows. While it is assumed lynx would prefer to travel where there is forested cover, the literature contains many examples of lynx crossing unforested openings (Roe et al. 2000).

Larger openings can often more closely resemble vegetative patterns similar to natural disturbance events (e.g. fire, windthrow, and insect outbreaks) (FEIS, Vol. 1, Appendix P). A disturbance pattern characterized by a few large blocks may be desirable if large areas of forested habitat are a management goal, or if the predation and competition that occur at the edges between vegetation types is a problem (Ruggiero et al. 2000, p. 431). While it is true lynx may not use large openings initially, once they have re-grown and can provide cover, generally after ten to 30 years, such areas may be important to lynx (FEIS, Vol. 1, Appendix P, p. 40092).



The selected alternative already contains direction to consider natural disturbances and maintain habitat connectivity. Based on this management direction and evaluating the information in the *Ecology and Conservation of Lynx in the United States* (Ruggiero et al. 2000) and the LCAS, we decided that a standard limiting the size of openings was unnecessary to improve lynx conservation.

### **Standards and guidelines relating to quality of winter snowshoe hare habitat**

Snowshoe hare are the primary prey for lynx. Winter snowshoe hare habitat is a limiting factor for lynx persistence. Snowshoe hare habitat consists of forests where young trees or shrubs grow densely. In addition to dense young regenerating forests, multistory forests that have trees whose limbs come down to snow level and have an abundance of trees in the understory, also provide winter snowshoe hare habitat. During winter, hare forage is limited to twigs and stems that protrude above the snow and the hares can reach. The LCAS recommended management direction to address winter snowshoe hare habitat in relation to precommercial thinning. Alternative B, the proposed action, splits the management direction to address actions occurring in winter snowshoe hare habitat in young regenerating forests (Standard VEG S5) and actions occurring in winter snowshoe hare habitat found in multistory forests (Standard VEG S6).

**Standard VEG S5.** The LCAS recommended no precommercial thinning that reduces winter snowshoe hare habitat in the *stand initiation structural stage*. This is reflected in Alternative B *Standard VEG S5*. Precommercial thinning within 200 feet of administrative sites, dwellings, or outbuildings has been allowed under current practices because it was found to have no effect to lynx due to location near structures.

Some people said this standard should apply to all vegetation management projects, not just precommercial thinning. Precommercial thinning is the primary activity that occurs in young regenerating forests. On occasion, other activities such as fuel treatments or prescribe burning, could occur. Alternatives C and D were expanded to apply to all vegetation management projects. Alternative E, the DEIS preferred alternative, only applied it to precommercial thinning projects.

Only a few comments were received on the DEIS saying the standard should apply to all type of projects. FWS did not comment on the more narrow application of the standard.

Standard VEG S5 in the selected alternative only applies to precommercial thinning because it is the predominate activity in young regenerating forests and it has been identified as the risk factor for reducing winter snowshoe hare habitat (LCAS, Ruggiero et al. 2000, USDA FS and USDI BLM 2000, USDI FWS 2000a, 2000b, USDI FWS 2003).

As noted earlier in the issues section, some people said precommercial thinning should be allowed to restore tree species in decline or to encourage future large trees. Alternative D addresses this issue by allowing precommercial thinning of planted

western white pine, whitebark pine, aspen, and larch, ponderosa pine, and lodgepole pine in certain situations. Alternative E, the DEIS preferred alternative, only allowed precommercial thinning adjacent to structures, for research or genetic tests, or for fuel treatment projects identified in a collaborative manner.

Several comments on the DEIS said the allowances for precommercial thinning in Alternative D should be incorporated into the final alternative. Several comments said that some allowance for adaptive management should be incorporated and that thinning should be allowed where it could be done to promote or prolong winter snowshoe hare habitat.

FWS comments on the DEIS said thinning adjacent to administrative sites, dwellings, or outbuildings and for research and genetic tests would have little effect on lynx or their habitat. In addition, they said the following thinning activities would have cumulatively little effect upon lynx habitat and, in some cases, advance natural ecological conditions. These include: (1) daylight thinning of planted rust-resistant western white pine where 80 percent of winter snowshoe hare habitat is maintained; (2) thinning within whitebark pine stands; (3) western white pine pruning; and (4) thinning for Christmas trees.

We evaluated the comments and incorporated the following elements into the selected alternative:

- Since Standard VEG S5 is concerned with reduction of winter snowshoe hare habitat, western white pine pruning and thinning for Christmas trees can occur if winter snowshoe hare habitat is not reduced. Generally these activities are done on an individual tree basis and do not change the characteristics of the habitat.
- Precommercial thinning can be done adjacent to administrative sites, dwellings, or outbuildings and for research and genetic tests since these would have benign effects on lynx.
- Precommercial thinning can be done for planted rust-resistant western white pine, whitebark pine, and aspen. Thinning to enhance whitebark pine and aspen would benefit other wildlife species and effects only limited acres in lynx habitat (FEIS, Vol. 1 Lynx section). Daylight thinning will be allowed around individual planted rust-resistant western white pine where 80 percent of the winter snowshoe hare habitat is retained. This may reduce some habitat effectiveness, but since this tree species has declined 95 percent across its range, we determined it was important to allow a limited amount of thinning to retain the species on the landscape.

Under these exceptions, about 64,000 acres could be precommercial thinned in occupied lynx habitat over the next decade – assuming full funding. This is likely to affect less than 2 percent of winter snowshoe hare habitat (FEIS Vol. 1 p. 188, USDI FWS 2007).

We also considered allowing precommercial thinning in vast areas of young regenerating forests where precommercial thinning could be done to prolong winter snowshoe hare habitat. We also considered precommercial thinning in young regenerating forests composed primarily of western larch with more than 10,000 trees

per acre – where larch would be removed to favor other species that provide better winter snowshoe hare habitat. In both these situations the general belief is that these activities may be beneficial to lynx in the long term, but information is not available at this time to support that hypothesis. So, the standard was modified to provide an avenue to consider new information that may in the future prove or disprove these hypotheses. The criterion provided in the selected alternative states:

Based on new information that is peer reviewed and accepted by the regional level of the Forest Service and the state level of FWS, where a written determination states:

- a. that a project is not likely to adversely affect lynx; or
- b. that a project is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat.

This criterion allows incorporation of new peer reviewed information, but requires agreement by FWS before it may be utilized.

**Standard VEG S6.** The LCAS recommended no precommercial thinning that reduces *winter snowshoe hare habitat in multistory forests*. This is reflected in Alternative B *Standard VEG S6*. Precommercial thinning within 200 feet of administrative sites, dwellings or outbuildings has been allowed under current practices because it was found to have no effect to lynx due to location near structures. The LCAS did not contain a recommendation related to other management actions.

As noted in Issue #3 some people said the management direction should preclude all activities that reduce winter snowshoe hare habitat in multistory forest. Alternatives C, D, and F would apply the management direction to all vegetation management activities in multistory forests that provide winter snowshoe hare habitat. Each alternative has different allowances for vegetation management. Alternative E, the DEIS preferred alternative, changed the management direction from a standard to Guideline VEG G8. The intent of the guideline was to direct vegetation projects to provide winter snowshoe hare habitat through time.

Multistory forest structures can develop from natural processes, such as insects and diseases and fire, or management actions like timber harvest that create small openings where trees and shrubs can grow.

Comments on the DEIS suggested that management direction for multistory forests should be in the form of a standard. FWS suggested the agencies review the latest information or research on lynx use of forests in multistoried structural stages prior to developing a final preferred alternative.

Recent research in northwest Montana demonstrates that mature multistoried forests provide important winter snowshoe hare habitat and are more important than younger stands (FEIS, Vol. 1, p. 22). In fact, the researchers questioned whether or not the LCAS would provide for lynx viability and recovery if only precommercial thinning were precluded.

Based on this new information we retained Standard VEG S6 in the selected alternative, but we preclude *all* vegetation management activities that reduce winter snowshoe hare habitat in multistory forests, not just precommercial thinning as recommended in the LCAS. We would allow minor reductions in winter snowshoe hare habitat for activities within 200 feet of structures, research or genetic tests, and for incidental removal during salvage harvest (associated with skid trails). Fuel treatment projects within the WUI are also exempt from this standard (see fuel treatment discussion further in this decision). We also allow timber harvest in areas that have the potential to improve winter snowshoe hare habitat but presently have poorly developed understories.

We believe and FWS concurred that protecting winter snowshoe hare habitat in multistoried forests will further retain and promote important lynx habitat components.

### **Standards and guidelines relating to denning habitat**

Woody debris – piles of wind-thrown trees, root wads, or large down trees – provides lynx denning sites. Large woody debris gives kittens an escape route from predators, as well as cover from the elements. During the first few months of life, when kittens are left alone while the mother hunts, denning habitat must be available throughout the home range (Bailey 1974). The LCAS recommended two standards and two guidelines related to denning habitat. These are reflected in Alternative B as *Standards VEG S3 and VEG S4 and Guidelines VEG G2 and VEG G3*.

In Alternative B Standard VEG S3 defers vegetation management projects in places with the potential to develop into denning habitat if an LAU contains less than ten percent denning habitat. Standard VEG S4 limits salvage harvest in some situations. Guideline VEG G2 says when more denning habitat is desired to leave standing trees and coarse woody debris. Guideline VEG G3 says to locate denning habitat where there is a low probability of stand-replacing fire.

### **Development of alternatives for the DEIS**

Some people said that den sites can be found in old regenerating forests and the agency should be allowed the flexibility to create denning habitat in regeneration units, especially since denning habitat should be located in or adjacent to forage. In Maine, 17 den sites were located in a variety of stand types, including 10-20 year old clearcuts adjacent to residual stands (FEIS, Vol. 1, Appendix P).

After reviewing the literature, we determined it was reasonable to have an alternative that allows for flexibility to mitigate or create denning habitat, especially when there is less than 10 percent denning habitat. Alternatives D and E modify Standard VEG S3 to say where there is less than 10 percent denning habitat either: 1) defer management, or 2) move towards 10 percent by leaving standing dead trees or piles of coarse woody debris. This combined the guidance in Alternative B, Guideline VEG G2 with the Standard VEG S3.

Some people said salvage harvest should not be singled out because it is not the only management action that removes denning habitat. Standard VEG S4 limits salvage harvest after a disturbance kills trees in areas five acres or smaller – if there is less than 10 percent denning habitat.

We evaluated whether other management actions, such as prescribed burning, chipping, piling and burning, etc. should be precluded. Salvage harvest is the primary management action that removes denning habitat because it removes dead and down timber; therefore we determined other actions did not need to be constrained.

However, we determined that Standard VEG S4 should be a guideline in Alternatives D and E because it provides guidance on how to design projects. The guideline says when there is less than 10 percent denning habitat, then units should consider retaining small areas of dead trees. As noted in Alternatives D and E, Standard VEG S3, units can mitigate when there is less than 10 percent denning habitat. It is possible to create denning habitat or retain pockets, but units should be allowed to evaluate denning needs on a site specific basis.

The intent of Alternatives D and E, is where denning habitat is lacking, units should recognize it, retain large and small patches and/or mitigate, especially if it denning habitat can be created in or near new forage areas. In most areas denning habitat is likely not limiting because it is found in such a variety of stand conditions and ages.

#### Considerations for alternatives in the FEIS

In comments on the DEIS some people said there was no basis for retaining ten percent denning habitat – they wanted the standard dropped altogether. Others wanted more denning habitat required. Some people asked for an alternative to prohibit harvest in old growth or mature timber to protect denning habitat. Others said that all old growth should be protected by management direction because some administrative units do not meet old growth standards.

Some people said allowing salvage logging in disturbed areas smaller than five acres lacked a scientific basis and that all salvage harvest should be deferred. Most comments on the DEIS said that management direction for denning habitat should be in the form of standards.

In their comments on the DEIS FWS supported Standard VEG S3, including conditions 1 and 2 in Alternative E, but was concerned about changing Standard VEG S4 into Guideline VEG G7. FWS recommended development of a standard that: 1) maintains ten percent denning habitat within an individual LAU; 2) is randomly/evenly distributed across the LAU; and 3) ensures recruitment of future denning habitat.

Based on these comments, we reconsidered the management direction for denning habitat. We held discussions with the researchers, lynx biology team and FWS to further explore denning habitat – where it is found, how to measure it, and how to ensure plans provide the appropriate level of management direction.

Where denning habitat is found: Since 1989 researchers have discovered that lynx denning habitat is found in a variety of structural stages from young regenerating forests to old forests. The integral component of lynx den sites appears to be the amount of downed, woody debris, not the age of the forest stand (Mowat, et al. 2000). Research by Squires (pers. com. Oct. 30, 2006) has found that of 40 den sites in northwest Montana most were located under large logs, but “jack-strawed” small diameter wind thrown trees, root wads, slash piles, and rock piles were also used (FEIS, Vol. 1 p. 172-173). These structural components of lynx den sites can often be found in managed (logged) and unmanaged (e.g. insect damaged, wind-throw) stands.

How to measure denning habitat: Retaining ten percent denning habitat is based on maintaining lynx habitat over time (Brittel et al. 1989). Brittel recommended a balance of conditions – 30 percent forage, 30 percent unsuitable that would grow into forage, 30 percent travel, and ten percent denning.

We evaluated how to measure 10 percent denning based on where the habitat can be found. We evaluated using mature and over-mature forests as a first approximation of denning habitat. Generally mature and over-mature forests contain a component of dead and down trees which lynx use. If these two components were used then all units would show much more than ten percent denning habitat as all forests have at least twenty percent of their forest in mature stand structures (Project file/ Analysis/Forests/FEIS/Data). In addition, these stand structures do not account for all the stand conditions where denning habitat can be found because denning habitat can be found in young forests with slash piles, lodgepole forests with insect and disease outbreaks, areas recently burned in wildfires, as well as variety of other forest conditions. Based on these discussions, we decided, with agreement from FWS, that using stand structures as a proxy would show an abundance of denning habitat; therefore the requirement to retain ten percent was found not to be a useful measure.

How to provide for denning habitat:

*We considered restricting harvest in mature forests and old growth.* The important component for all lynx den sites appears to be the amount of down woody debris present, not the age of the forest (Mowat et al. 2000, Appendix P). Old growth and mature forests can provide denning habitat, but based on review of research a variety of forest structures also provide denning habitat. We considered prohibiting timber harvest in old growth but dismissed this from detailed consideration because denning habitat is found in a variety of forest structures (FEIS, Vol. 1 p. 81).

*We considered restricting salvage harvest.* Standard VEG S4 in Alternatives B and C limits salvage harvest after a disturbance kills trees in areas five acres or smaller – if there is less than 10 percent denning habitat. The standard was changed to a guideline in Alternatives D and F. The guideline says that when there is less than 10 percent denning habitat, then units should consider retaining small areas of dead trees.



Salvage harvest can remove denning habitat. However, den sites are found in areas with large logs, “jack-strawed” small diameter wind thrown trees, root wads, slash piles, and rock piles. These areas need not be extensive – they are generally small areas that provide sufficient cover for lynx den sites.

We reevaluated whether or not denning habitat is a limiting factor for lynx. Based on discussions with research, we reaffirmed that denning habitat is found in a variety of forest conditions, they are found in small pockets scattered across an area and are generally found across the landscape, and lynx denning sites are not believed to be a limiting factor (J. Squires, pers. com. Oct. 30, 2006). In addition, management actions can create denning habitat by strategically leaving piles of woody debris, or leaving residual trees where denning habitat is lacking.

Therefore, we determined that restricting salvage harvest was not necessary, but that projects should consider the abundance and distribution of denning habitat in their project design and leave den site components (piles of down wood, or standing dead trees) where it is lacking.

*We considered management direction in the form of standards vs. guidelines.* We determined management direction for denning habitat should be incorporated into one set of management direction. Incorporating all the direction into one standard or guideline reduces the potential for conflicts between directions, focusing on the important components of denning habitat.

We determined a guideline would be best suited for this management direction because denning habitat can be found in a variety of forest structures and in small areas, is not a limiting factor for lynx, and the management direction would provide design features for projects. Therefore we developed Guideline VEG G11 in the selected alternative. The guidance is to: 1) have denning habitat distributed across an LAU (in the form of pockets of large woody debris, either down logs or root wads, or large piles of jack-strawed trees); and 2) if denning habitat is lacking, projects should be designed to retain coarse woody debris – by leaving piles or retaining residual trees that can become denning habitat later.

Objectives VEG O1, VEG O2, VEG O3, and VEG O4 and Standards VEG S1, VEG S2, and VEG S6 also indirectly promote the development and retention of the structure needed for denning habitat through vegetation management that promotes a mosaic of forest conditions across the landscape (USDI FWS 2007). Based on the above, FWS determined that projects were unlikely to reduce denning structure to levels that result in adverse effects to lynx (USDI FWS 2007).

In addition, the Lynx Biology Team (the team responsible for the LCAS) is in the process of updating the LCAS denning habitat recommendations based on this new information about where denning habitat is found and its distribution.

## **Consideration of fuel treatment projects**

Most lynx habitat consists of high-elevation spruce/fir and lodgepole pine forests, but some lynx habitat may be found in mixed conifer forests. Generally, forests in lynx habitat are close to historic conditions, meaning the long fire return interval has not been affected to any large degree by more recent fire suppression as is the case in dryer forests with short fire return intervals. However, some stand conditions are conducive to extreme fire behavior because of insect and disease mortality or the amount of tree limbs that provide ladder fuels. Fuel treatments designed to reduce ladder fuels and/or reduce the potential size (Finney 2001) and severity of wildland fires may be proposed in lynx habitat.

After the 2000 wildfire season, which burned a substantial amount of acreage, the Forest Service began to set goals for wildfire management. Several documents serve to provide a national prioritization system for the selection of hazardous fuel treatments on Federal lands with close coordination among the Federal, State, and other agencies, as well as Tribes and communities. The criteria for prioritizing lands for hazardous fuels treatment generally correspond to: (1) closest proximity to communities at risk in the WUI; (2) strategic areas outside the WUI that prevent wildland fire spread into communities or critical infrastructure; (3) areas outside of WUI that are in Condition Classes 2 or 3; and (4) other considerations (FEIS, Vol. 1 p. 215).

The LCAS did not specifically address fuel treatments. During scoping we identified wildland fire risk as an issue, issue # 2 (FEIS, Vol. 1 p. 21-22). We developed a range of alternatives to address this issue.

In Alternative A, there would be no change in existing plan direction on the treatment of fuels.

Alternative B would allow fuel treatments to go forward if they:

- Meet the 10 percent denning standard (Standard VEG S3 and S4)
- Meet 30 percent unsuitable habitat standard (Standard VEG S1) or 15 percent unsuitable habitat created by timber harvest standard (Standard VEG S2)
- Use methods other than precommercial thinning in winter snowshoe hare habitat (Standards VEG S5 and VEG S6)

Alternatives C and D would not allow any type of fuel reduction project that reduced winter snowshoe hare habitat – except within 200 feet of structures.

Alternative E, the DEIS preferred alternative would not apply the vegetation standards (Standards VEG S1, S3, and S5) to fuel treatments developed in a collaborative manner, as described in the *10-Year Comprehensive Strategy Implementation Plan* (USDA FS 2001). This exception was used because a multi-party Memorandum of Understanding was signed in 2003 by the FS, BLM, and FWS (USDA FS et al. 2003) concerning fuel treatments and collaboration.

Many comments were received on the DEIS regarding fuel treatments. Some people suggested there be no exemptions for fuel treatments. Several groups suggested that only fuel treatments within 500 yards of human residences and other structures be allowed because these areas are generally not appropriate to restore lynx anyway. Others felt the exemptions should only apply to the WUI and that the agencies should define the WUI. Others liked the exemptions as they were written in Alternative E.

FWS cautioned against exempting a broad range and unknown number of actions from plan direction. They felt, as currently worded in Alternative E, the exemption was sufficiently vague that it did not allow an adequate analysis of potential effects upon lynx or lynx habitat and it could result in extensive adverse effects to lynx.

FWS suggested Standard VEG S5 be modified to restrict precommercial thinning to within one mile of structures. They did not believe any exemptions were needed for Standards VEG S1 or S2 since so very few LAUs were near the thresholds identified in these standards. They felt very few proposals would be constrained by the standards. They also questioned why Condition Class 1 forests were not specifically excluded from the exemptions. Condition Class 1 forests include areas where fires have burned as often as they did historically; the risk of losing key ecosystem components is low; and vegetation composition and structure is intact and functioning. The FWS went on to say they recommended that processes, actions, or types that would be exempt be clearly identified.

We reviewed and discussed the comments with FWS and decided to modify the fuel treatment exemption for the selected alternative. We thoroughly discussed the issue of how to allow for fuel treatments to reduce the hazard to communities – while providing for the conservation and recovery of lynx (Project File/ Alternatives/FEIS alternatives).

Based on our discussions we decided none of the vegetation standards will apply to fuel treatment projects within the WUI as defined by the Healthy Forests Restoration Act (HFRA), within a certain limit. We constrained the number of acres that do not meet the standards to 6 percent of lynx habitat within a National Forest, and we added the FWS term and condition that fuel treatment projects can cause no more than 3 adjacent LAUs to not meet standard VEG S1.

In addition we added Guideline VEG G10 which says fuel treatment projects within the WUI should be designed *considering* Standards VEG S1, S2, S5, and S6. The intent in adding this guideline is that although these vegetation standards do not apply to fuel treatment projects within the WUI as defined by HFRA, these projects should still consider the standards in the development of the proposal. In many cases projects can be designed to reduce hazardous fuels while providing for lynx needs. This guideline ensures lynx are considered in the project design – but allows for the flexibility of not meeting the standards in situations where meeting the standards would prevent the project from reducing the hazardous fuels in the WUI.

The following describes some of the considerations in the development of this direction.

*Application to Standards VEG S1 and S2:* Under Standards VEG S1 and S2 it is likely very few projects would exceed the 30 percent and 15 percent criteria because many fuel treatment projects are not regeneration harvest. If regeneration harvest is applied it is likely to be done to create a fuel break adjacent to communities or to break up the continuity of fuels (Finney 2001). Since part of our direction under the Healthy Forests Initiative is to look for ways to expedite fuel reduction projects we determined that we did not want to have to amend forest plans for the few cases where not meeting the standards may be necessary.

*Application to Condition Class 1:* Many forests in lynx habitat are in Condition Class 1, meaning these forests have not missed a fire cycle because large, stand-replacing fire only occurs every 100 to 200 years. However, some of these Condition Class 1 forests can still be a threat to communities. An example is lodgepole pine forests which are at the age of being susceptible to mountain pine beetle outbreaks. Regenerating lodgepole pine, adjacent to a community, may be needed to reduce the severity and size of a wildland fire. Fire is a natural process in these ecosystems; but there is a need to balance the natural process with the risk of fire destroying homes; therefore we did not limit the standard to particular condition classes.

*What locations should be exempted:* We evaluated various options regarding where the standards should be applied and we used a variety of criteria to evaluate which option to carry forward for detailed consideration. The criteria included: 1) is there a defined area; 2) can effects be meaningfully evaluated; 3) would it provide for community protection; and 4) does it meet the purpose and need. (For further detail see FEIS, Vol. 1 pp. 85-86 which summarizes the options and considerations and the Project File/Alternatives/FEIS Alternatives/documents July 29, 2004 through February 24, 2005).

Based on comments, national direction regarding fuel treatments, and the effects on lynx, we decided exempting fuel treatment projects within the WUI, within limits would be a reasonable balance. We decided to use the definition established by Congress in the HFRA as it established a national procedure for determining the extent of the WUI (USDI, USDA FS 2006).

*What limit(s) should be applied:* We elected to put a limit on the amount of fuel treatment projects that could exceed the vegetation standards, since WUI has not been mapped on all units. We evaluated the WUI based on a mile of where people live (FEIS, Vol. 1 p. 217). A one mile buffer from communities was used because HFRA describes WUI as ½ mile or 1 ½ miles depending on certain features. One mile splits this difference and is easy to approximate. Based on this analysis, we found that about 6 percent of lynx habitat is within 1 mile of communities; therefore we limited the amount of acres that can exceed the standards to 6 percent of each National Forest.

In addition, FWS identified two terms and conditions (TC) to minimize impacts of incidental take of lynx due to fuel treatment projects. TC 1 (6 percent limit) was already incorporated as described above; TC 2 says fuel treatment projects shall not result in

---

more than three adjacent LAUs exceeding the standard. This TC has been incorporated into the management direction – see Attachment 1.

*Summary:* Exempting fuel treatment projects within the WUI provided a defined area, as requested by FWS; we could evaluate the effects (FEIS, Vol. 1 Lynx section); it provides for community protection by reducing delay; and meets the purpose and need by constraining the area where adverse effects could occur. In addition we compiled information from each forest's 5 year fuel treatment program to evaluate effects – FEIS, Vol. 1, Lynx section and Appendix M, and USDI FWS 2007. This information was not available for the DEIS. We found that although we would limit adverse effects to 6 percent of lynx habitat, it is more likely only 1.4 percent or less of lynx habitat would have adverse effects. This is because the fuel treatment program of work within the WUI only amounts to 1.4 percent of lynx habitat and many projects can be designed to meet the vegetation standards. Regardless, the vegetation standards would apply to fuel treatments on 94 percent of lynx habitat.

In addition, by addressing the exemption and putting a limit on where adverse effects could occur this allowed us to take a cumulative look at the effects planning area wide vs. amending standards project-by-project.

### **FWS findings related to the vegetation management direction**

The vegetation management direction set forth in the selected alternative conserves the most important components of lynx habitat: a mosaic of early, mature, and late successional staged forests, with high levels of horizontal cover and structure. These components ensure the habitat maintains its inherent capability to support both snowshoe hare prey base and adequate lynx foraging habitat (and denning habitat) during all seasons. These standards are required for all vegetation management actions on at least 93.5 percent of lynx habitat in the planning area. Areas within the WUIs (totaling six percent of lynx habitat) are exempt from these standards; however VEG G10 would apply and at least requires some consideration of the standards in designing fuel reduction treatments. Precommercial thinning, allowed under the exceptions, may affect an additional 0.5 percent of lynx habitat. Where these standards are applied to vegetation management projects, we anticipate few, if any, would have adverse effects on lynx. Collectively, application of these standards for vegetation management is expected to avoid adverse effects on lynx and promote the survival and recovery of lynx populations (USDI FWS 2007).

### **Management direction related to grazing**

Livestock grazing may reduce or eliminate foraging habitat in areas that grow quaking aspen and willow in riparian areas (LCAS). These localized changes in habitat may affect individual lynx; however, no information indicates that grazing poses a threat to overall lynx populations (FEIS, Vol. 1, Appendix P, p. 40083). Appropriate grazing management can rejuvenate and increase forage and browse in key habitats such as riparian areas. Grazing was not mentioned in the original listing decision as a threat to

lynx, nor is it discussed in *the Ecology and Conservation of Lynx in the United States* (Ruggiero et al. 2000). In addition, FWS noted that they have found no research that provides evidence of lynx being adversely affected by grazing within the planning area or elsewhere, or of lynx movements within home ranges being impeded by grazing practices (USDI FWS 2007).

The LCAS recommended four standards for grazing management. These are reflected in Alternative B. *Standards GRAZ S1, GRAZ S2, GRAZ S3, and GRAZ S4* provide management direction for grazing in fire and harvest created openings, aspen stands, riparian areas and willow carrs, and shrub-steppe habitat. Alternatives C and D retain the management direction as standards. Alternative E changes the management direction to Guidelines GRAZ G1, GRAZ G2, GRAZ G3, and GRAZ G4 because neither the Remand Notice nor the *Ecology of Conservation of Lynx in the United States* recognized grazing as a threat to lynx.

Many people commented on Alternative E, the preferred alternative in the DEIS, and said the guidelines should be standards in the final alternative. Others said grazing should not be allowed at all, while two said the grazing guidelines should be retained. The FWS did not comment on the level of grazing management direction in Alternative E. We considered these comments in the FEIS Vol. 1 pp. 86-87, as well as Vol. 2, 75-76.

We decided the management direction for grazing in the selected alternative should be in form of guidelines, Guidelines GRAZ G1 through GRAZ G4 because there is no evidence grazing adversely affects lynx. These guidelines provide project design criteria for managing grazing in fire and harvest created openings, aspen, willow, riparian areas, and shrub-steppe habitats. The guidelines are designed to minimize potential adverse effects and improve habitat conditions. FWS found that with the application of these measures in most cases, there would be no effects or discountable effects to lynx (USDI FWS 2007). In addition, the Lynx Biology Team is in the process of updating the LCAS grazing recommendations.

## **Management direction related to human uses**

### **Over-the-snow winter recreation**

Lynx have very large feet in relation to their body mass, providing them a competitive advantage over other carnivores in deep snow. Various reports and observations have documented coyotes using high elevation, deep snow areas (Buskirk et al. 2000). Coyotes use open areas because the snow is more compacted there, according to research conducted in central Alberta (Todd et al. 1981). In another study in Alberta, coyotes selected hard or shallow snow more often than lynx did (Murray et al. 1994).

The LCAS recommended two objectives and two standards relating to winter dispersed recreation. These are reflected in Alternative B, *Objectives HU O1 and HU O3, and Standards HU S1 and HU S3*. In Alternative B, Standard HU S1 would maintain the existing level of groomed and designated routes. All action alternatives contain



Objectives HU O1 and HU O3 that discourage expanding snow-compacting human activities. Alternatives B, C, and D contain Standard HU S1 that would allow existing over-the-snow areas to continue but not expand into new, un-compacted areas. Alternative E, the DEIS preferred alternative, contains Guideline HU G11 that discourages the expansion of designated over-the-snow routes and play areas into uncompacted areas. All alternatives would allow existing special use permits and agreements to continue.

In comments on the DEIS some people asked that no dispersed over-the-snow use be allowed off groomed or designated trails and areas, saying the no net increase in groomed or designated routes did not go far enough. Others said the management direction should be in the form of a standard, not a guideline.

Some people said standards related to over-the-snow use should be removed. They said there is no evidence to show that coyotes and other predators use packed snow trails to compete with lynx for prey, and the amount of compaction created by snowmobiles is insignificant compared to the compaction created naturally by the weather. They were particularly concerned that if such language was introduced into plans, it could be difficult to change, incrementally restricting the places where snowmobiling is allowed. Others wanted an allowance made to increase use. These comments were considered for management direction – see FEIS Vol. 1 pp. 90-93.

In their comments on the DEIS the FWS agreed it is prudent to maintain the status quo and restrict expansion of over-the-snow routes until more information is available because of the possibility that, over time, unregulated expansion could impair further conservation efforts. They also said current, ongoing research in Montana may shed some information on the effects of snow compaction on lynx. They suggested careful consideration of the most recent information and the reality of possible impairment of options for the future. They suggested considering language that could provide more guidance on conditions where the expansion of over-the-snow routes would be warranted and acceptable.

We reviewed the results of research conducted since the DEIS was released. In northwestern Montana (within the northern lynx core area) Kolbe et al. (in press) concluded there was “little evidence that compacted snowmobile trails increased exploitation competition between coyotes and lynx during winter on our study area.” Kolbe et al. (in press) suggested that compacted snow routes did not appear to enhance coyotes’ access to lynx and hare habitat, and so would not significantly affect competition for snowshoe hare. They found that coyotes used compacted snow routes for less than 8 percent of travel, suggesting normal winter snow conditions allowed access by coyotes, regardless of the presence or absence of compacted snow routes. Kolbe was able to directly measure relationships between coyotes, compacted snow routes and snowshoe hare in an area that also supports a lynx population (USDI FWS 2007). In this study coyotes primarily scavenged ungulate carrion that were readily

available while snowshoe hare kills comprised only three percent of coyote feeding sites (Kolbe et al. in press).

In the Uinta Mountains of northeastern Utah and three comparative study areas (Bear River range in Utah and Idaho, Targhee NF in Idaho, Bighorn NF in Wyoming) Bunnell (2006) found that the presence of snowmobile trails was a highly significant predictor of coyote activity in deep snow areas.

From track surveys it was determined the vast majority of coyotes (90 percent) stayed within 350 meters of a compacted trail and snow depth and prey density estimates (snowshoe hares and red squirrels) were the most significant variable in determining whether a coyote returned to a snowmobile trail (Bunnell 2006). Of the four study areas recent lynx presence has only been documented on the Targhee NF. Bunnell indicated that “circumstantial evidence” suggested the existence of competition.

To date, research has confirmed lynx and coyote populations coexist, despite dietary overlap and competition for snowshoe hare, the primary prey of lynx, and alternate prey species. In some regions and studies, coyotes were found to use supportive snow conditions more than expected, but none confirm a resulting adverse impact on lynx populations in the area. The best scientific information (Kolbe’s study) is from an occupied core area within our planning area. Radio-collared lynx and coyotes were monitored in this study, unlike the Bunnell study. This area is occupied by both lynx and coyotes and the study concludes coyotes did not require compacted snow routes to access winter snowshoe hare habitat.

Based on this information, we reevaluated management direction related to over-the-snow activities. An alternative to prohibit all snow-compacting activities or to limit dispersed use was evaluated, but not considered in detail because current research indicates this level of management direction is unwarranted (USDI FWS 2000a; FEIS, Vol. 1, Appendices O and P).

An alternative to drop all direction limiting snow compaction was not developed in detail because there is evidence competing predators use packed trails, suggesting a potential effect on individual lynx. We decided it was prudent to maintain the status quo and not let over-the-snow routes expand. However, we also decided it was reasonable to retain the direction as a guideline in the selected alternative which can be used in project design. The intent is to follow the management direction in guidelines. However, there may be some cases where expansion of over-the-snow routes would be warranted and acceptable, or where research indicates there would be no harm to lynx. Guidelines are better suited to adaptive management.

There is also no basis to establish any particular threshold of allowable increases. However, the selected alternative allows expanding winter recreation in some places where heavy public use existed in 1998, 1999, or 2000 – see Guideline HU G11.

The FWS concluded the Objectives HU O1 and O3, and Guideline HU G11 would be sufficient to maintain habitat effectiveness for lynx by limiting the expansion of

compacted snow routes and this conclusion would be tested through monitoring required in this decision. The best information available has not indicated compacted snow routes increase competition from other species to levels that adversely affect lynx populations, and under the selected alternative the amount of areas affected by snow compacted routes would not substantially increase (USDI FWS 2007).

### **Developed recreation**

The LCAS identified risk factors associated with ski areas, including *short-term effects* on denning, foraging, and diurnal security habitat and *long-term effects* on movement within and between home ranges (LCAS, p. 2-10). Ski areas may eliminate habitat and pose a threat to movements; but most were constructed before lynx became a conservation issue (Hickenbottom et al. 1999, p. 70). Mitigation measures can be developed at the project level to lessen the effects of existing developments.

The LCAS recommended various objectives, standards, and guidelines in relation to developed recreation, specifically ski areas. These are reflected Alternative B, *Objectives ALL O1, HU O2, HU O3, and HU O4; Standards ALL S1 and HU S2; and Guidelines HU G1, HU G2, HU G3, and HU G10*. Objectives and standards (*LINK O1 and LINK S1*) regarding habitat connectivity also address concerns about developed recreation. These objectives, standards, and guidelines provide management direction about ski area development, expansion, and operations to provide for lynx movement, security, and habitat needs.

The alternatives retain similar management direction as Alternative B, except Alternatives C, D, and E changed Standard HU S2 to Guideline HU G10. Standard HU S2 requires diurnal habitat to be maintained, if needed. There is no evidence that diurnal security habitat is required by, or where it occurs on ski areas is used by lynx (USDI FWS 2007). Since the need to provide diurnal habitat is questionable, we determined it was better suited as a guideline.

In commenting on the DEIS some people said ski areas should be removed or at least prevented from expanding. Others recommended the final preferred alternative retain Standard HU S2. There are 24 existing down hill and cross country ski areas in occupied habitat in the planning area, which affect about 17,500 acres out of the 12.5 million acres of occupied habitat. Eight down hill ski areas are planned for expansion. One new ski area is proposed. Most of the ski areas are located on individual mountain ranges, not several together as in other areas in the west (FEIS, Vol. 1 p. 285). There is no indication these ski areas affect lynx travel because these ski areas are spread across the planning area. There is no information that indicates removal of ski areas is warranted, nor is limiting their expansion, as long as lynx needs are considered. The selected alternative includes standards to provide for lynx habitat connectivity, and includes guidelines to be use in the development of ski area expansion. Many adverse effects of developed recreation will be minimized under the selected alternative (USDI FWS 2007).

## **Minerals and energy**

The LCAS said the main risk factors associated with minerals and energy development is related to the potential for plowed roads to provide access for lynx competitors.

These recommendations are reflected in Alternative B, *Objectives ALL O1, HU O1, and HU O5, Standards ALL S1 and HU S3, and Guidelines HU G4, and HU G5* which provide management direction for mineral and energy development. All except standard HU S3 remain essentially the same in all alternatives. Standard HU S3 says to keep mineral and energy development to designated routes. This standard was changed to Guideline HU G12 in Alternative E and in the selected alternative to be consistent with the application of management direction regarding over-the-snow routes discussed above.

In commenting on the DEIS some people said lease stipulations identifying constraints on developing oil and gas, coal, or geothermal resources should be one of the decisions made as a part of the management direction. This comment is addressed in the FEIS, Vol. 1 p. 94-95. FWS did not comment on the management direction related to minerals and energy development.

## **Forest roads**

Lynx are known to have been killed by vehicle-collisions in Colorado (reintroduced population; paved, high-speed highways), in Minnesota (paved, high-speed highways) and in Maine (high-speed, relatively straight gravel roads on flatter terrain). The best information suggests that the types of roads managed by the Forest Service do not adversely affect lynx (USDI FWS 2007). Lynx mortality from vehicle strikes are unlikely, and to date none have been documented on National Forest System lands within the planning area, given the relatively slow speeds at which vehicles travel on these roads (due to topography and road conditions) and generally low traffic volumes.

Roads may reduce lynx habitat by removing forest cover. Along less-traveled roads where the vegetation provides good hare habitat, sometimes lynx use the roadbeds for travel and foraging (Koehler and Brittell 1990; LCAS, p. 2-12). A recent analysis on the Okanogan NF in Washington showed lynx neither preferred nor avoided forest roads, and the existing road density does not appear to affect lynx habitat selection (McKelvey et al. 2000; USDI FWS 2000a, p. 39).

Although many species of wildlife are disturbed when forest roads are used (Ruediger 1996), preliminary information suggests lynx do not avoid roads (Ruggiero et al. 2000) except at high traffic volumes (Apps 2000). In denning habitat, when roads are used during summer, lynx may be affected if they move their kittens to avoid the disturbance (Ruggiero et al. 2000; LCAS, p. 2-12).

The LCAS recommended several guidelines to address potential impacts of forest roads, including upgrading, cutting and brushing, and public use. These guidelines generally discourage improving access for people or reduce the likelihood people would see lynx near roads. These guidelines are reflected in Alternative B, *Guidelines*

*HU G6, HU G7, HU G8, and HU G9.* All the alternatives, including the selected alternative retain these guidelines.

In commenting on the DEIS some people said more restrictions on roads were needed to conserve lynx. They wanted new road construction halted, road densities identified and existing roads closed or eliminated, or they wanted the roads guidelines turned into standards. Other people said there should be no road-related standards or guidelines, saying no evidence exists that roads harm lynx. Some people said Guideline HU G9 should be deleted because there are no compelling reasons to close roads. The FEIS, Vol. 1, pp. 95 to 96 describes how these were considered in the development of the management direction. FWS had no comments related to these guidelines.

Based on our review we found no information indicating road building should be banned or that further restrictions were needed. The guidelines adequately address the known risks associated with roads. We determined guidelines were the appropriate level of management direction because guidelines provide information and guidance for project design and decision-making. Some guidance on how to design projects is warranted because roads may affect individual lynx.

## **Management direction related to linkage areas**

### ***Highways and connectivity***

Highways impact lynx by fragmenting habitat and impeding movement. As traffic lanes, volumes, speeds, and rights-of-way increase, the effects on lynx are increased. As human demographics change, highways tend to increase in size and traffic density.

The LCAS recommended one objective, two standards, and a guideline directly or indirectly related to highways and connectivity. These are reflected in Alternative B, *Objective ALL O1, Standards ALL S1 and LINK S1, and Guideline ALL G1.* Objective ALL O1 and Standard ALL S1 are intended to maintain connectivity. Standard LINK S1 is intended to provide a process for identifying wildlife crossings across highways.

Alternatives C, D, E and the selected alternative have the same objective and standards.

In comments on the DEIS some people said more should be done than just identifying highway crossings. FWS did not comment on management direction related to highways.

The LCAS recommended project standards for highways. It says to “Identify, map and prioritize site-specific locations, using topographic and vegetation features, to determine where highway crossings are needed to reduce highway impacts on lynx and other wildlife”. Alternatives B, C, D, E and the selected alternative include Standard LINK S1 which reflects the intent of the LCAS recommendations. In addition, Guideline ALL G1 says “Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across federal land. Methods could include fencing, underpasses or overpasses.”

As noted in Chapter 3, Transportation Section, portions of three highways are likely to be reconstructed in linkage areas in the next ten years. State agencies in Wyoming, Idaho, and Montana are incorporating wildlife crossings into their highway design packages (Wyoming Department of Transportation, 2005; Idaho Transportation Department 2004; Montana DOT, FHWA, Confederated Kootenai and Salish Tribes 2006). Therefore no further management direction regarding wildlife crossings in the form of standards was found to be warranted.

### ***Other considerations in linkage areas***

Coordination among different land management agencies is important to the recovery of lynx because lynx have large home ranges and may move long distances. The LCAS recommended guidance for working with landowners to pursue solutions to reduce potential adverse effects. This recommendation is reflected in Alternative B, *Objective LINK 01*. This objective is the same among all alternatives, including the selected alternative.

In addition, it is important to mention the Forest Service is a lead member in the interagency Lynx Steering Committee and the Lynx Biology Team (FEIS, Vol. 1 Chapter 4), and played a key coordination role for the Lynx Science Team. These efforts facilitate relationships with other Federal and non-Federal landowners, including the States and provide a source for non-Federal land management guidance, through products such as the LCAS and Forest Plans. The Steering Committee would also provide a forum to build and sustain cooperative efforts with Canada to maintain lynx connectivity across the international border, if and when the need arises (USDI FWS 2007). The Forest Service also led the interagency effort to identify linkage areas.

### **Use of standards and guidelines**

The selected alternative incorporates standards for those risk factors found to threaten lynx populations. Standards are management requirements used to meet desired conditions. Standards were used in those situations where we wanted to provide sideboards for project activities. Guidelines were used for those risk factors that may have possible adverse affects on individual lynx. Guidelines are management actions normally taken to meet objectives. They provide design criteria to meet lynx objectives. We expect guidelines to be followed in most cases, however based on site-specific conditions there may be reason not to follow a guideline.

FWS found guidelines would be implemented in most cases and adverse effects would not always occur where guidelines are not implemented. Effects would be based on site-specific conditions, with compliance with Section 7 consultation for each project. The FWS does not expect adverse effects as a result of changes of LCAS standards to guidelines to reach levels that impact lynx populations. Changes from standards to guidelines occurred when the best available information indicated the action was not likely to adversely affect lynx, or not likely to adversely affect lynx in most cases (i.e. where no conclusive or reliable information supported the standard in the LCAS).

---



Application of the standards, and for the most part guidelines, in core and occupied secondary areas substantively reduce the potential for adverse effects on lynx over the existing plans (USDI FWS 2007).

In addition, we will monitor the application of guidelines to see if our assumption they are normally applied is correct. Annually we will review the monitoring results to determine if further consideration is warranted.

### **Where to apply the decision**

The selected alternative is incorporated into all forest plans in the planning area (FEIS, Vol. 1, Table 1-1 p. 5 and Figure 1-1). However, the management direction only applies to occupied lynx habitat. Those National Forests (the Beaverhead-Deerlodge, Bitterroot, Nez Perce in Region 1; the Bighorn in Region 2; and the Ashley, and Salmon-Challis in Region 4), or isolated portions of National Forests (the Custer, Gallatin, Helena and Lewis and Clark in Region 1), that presently are unoccupied by Canada lynx should consider the management direction that is now incorporated into their Forest Plans when developing projects, but are not required to follow the management direction until such time as they are occupied by Canada lynx.

According to the Conservation Agreement (USDA FS, USDI FWS 2006a), an area is considered occupied when: (1) there are at least 2 verified lynx observations or records since 1999 on the national forest, unless they are verified to be transient individuals; or (2) there is evidence of reproduction on the national forest.

This direction is in keeping with the current Conservation Agreement which only applies to projects and activities in occupied habitat. The FWS species lists on those forests and portions of forests that are unoccupied do not show lynx as a species for consideration. However, as noted in the Biological Opinion, the FWS said, and we agree that lynx detection is needed to assess whether further management direction is warranted (USDI FWS 2007). Therefore, we agree to work with the FWS to develop and complete an acceptable protocol to survey currently unoccupied lynx habitat in secondary areas as described in the Biological Opinion, Term and Condition #4.

### **Incorporation of terms and conditions**

On March 16, the FWS issued its Biological Opinion on the Northern Rockies Lynx Management Direction (USDI FWS 2007). In the opinion the FWS concluded that the management direction would overall be beneficial, but that some adverse effects to lynx would still be anticipated. It determined the management direction would not jeopardize the continued existence of lynx. The opinion also provides an incidental take statement which specifies the impact of any incidental taking of lynx. It also provides reasonable and prudent measures that are necessary to minimize the impacts of the take and sets forth terms and conditions which must be complied with in order to implement the reasonable and prudent measures.

The opinion identified three reasonable and prudent measures (RPM) with four associated terms and conditions (TC). We incorporated TC 1 through 3 into the management direction. The TCs are shown in italics in Attachment 1. TC #4 is agreed to as described below.

RPM #1: Minimize harm from fuels management by ensuring the acres impacted are not concentrated in a geographic area or several adjacent LAUs

Ensure fuels management projects conducted under the exemptions from Standards VEG S1, S2, S5 and S6 in occupied habitat:

TC 1. do not occur in greater than 6 percent of lynx habitat on any forest; and

TC 2. do not result in more than 3 adjacent LAUs not meeting the VEG S1 standard.

TC 1 was already part of the management direction. TC 2 has been added to Standard VEG S1.

RPM #2: Minimize harm from precommercial thinning and vegetation management by ensuring that LAUs either retain sufficient foraging habitat, or do not substantially reduce foraging habitat.

TC 3. In occupied habitat, precommercial thinning and vegetation management projects allowed per the exceptions listed under VEG S5 and S6, shall not occur in any LAU exceeding VEG S1, except for projection of structures. This requirement has been added to Standards VEG S5 and VEG S6.

RPM #3: On those Forests with currently unoccupied lynx habitat, lynx detection is needed to assess whether further management direction is warranted, including application of the management direction.

TC 4. Within 18 months of the date of the Biological Opinion, the Forest Service shall work with the Service to develop and complete an acceptable protocol to survey currently unoccupied lynx habitat in secondary areas. We agree to work with the FWS to develop and complete the protocol in unoccupied secondary areas.

The FWS also identified several monitoring and reporting requirements related to the above terms and conditions. We have incorporated these elements in the selected alternative – see Attachment 1, page 9.

### **Consideration of conservation recommendations**

The FWS also identified three conservation recommendations which are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop information.

Recommendation 1. The FS should ensure to the extent possible, that unoccupied habitat continues to facilitate and allow dispersal of lynx into the future. Therefore the

FWS recommends the management direction regarding linkage areas and connectivity by applied in the unoccupied areas (ALL O1, ALL S1, ALL G1; LINK O1, LINK S1 and LINK G1). The Forest Service already considers and applies this management direction in our current program of work; therefore we have decided to not apply the direction in unoccupied areas until such time the areas are occupied.

Habitat connectivity is considered in the design of permanent developments and vegetation management. Few, if any, vegetation projects affect habitat connectivity. Most, if not all units, have some level of riparian area protection requirements in their existing plans. This direction facilitates movement of lynx through riparian areas.

The greatest risk to impeding connectivity is in relation to roads and highways. The Forest Service already works with the State and Federal Highway agencies and is part of the steering team that produced the document *Eco-logical: An Ecosystem Approach to Developing Infrastructure Projects* (USDOT, 2006), FEIS Transportation Section. Also noted in this section is the highway work planned and projected in all lynx habitat and how the states have incorporated wildlife crossings into the design of those future projects. The FEIS p. 198 evaluated the effects of not applying the management direction to unoccupied areas and discloses that there would be minimal effects, especially to linkage areas because similar management direction or the intent of the direction already exists.

Recommendation 2. The Forest Service should coordinate with the Service to develop, within 18 months a method to monitor the amount and condition of lynx habitat in unoccupied secondary habitat. The Forest Service agrees to this recommendation.

Recommendation 3. The Forest Service should continue to be a leader in lynx conservation and understanding. The Forest Service agrees to this recommendation.

### **Canada Lynx Recovery Outline**

On September 12, 2005 the FWS issued a Recovery Outline for Canada lynx (USDI FWS 2005). The outline is to serve as an interim strategy to guide and encourage recovery efforts until a recovery plan is completed. In the Recovery Outline, FWS categorized lynx habitat as: 1) core areas; 2) secondary areas; and 3) peripheral areas. The areas with the strongest long-term evidence of the persistence of lynx populations within the contiguous United States are defined as “**core areas.**” As we discuss below and illustrated on the enclosed map (Figure 1-1), we have two core areas in the analysis area. Core areas have both persistent verified records of lynx occurrence over time and recent evidence of reproduction. According to FWS, focusing lynx conservation efforts on these core areas will ensure the continued persistence of lynx in the contiguous United States by addressing fundamental principles of conservation biology (USDI FWS 2007). The Recovery Outline says “Recovery of lynx will be achieved when conditions have been attained that will allow lynx populations to persist long-term within each of the identified core areas.” (USDI FWS 2005).

At this time, the role of areas outside of these core areas in sustaining lynx populations is unclear. The fluctuating nature of lynx population dynamics and the ability of lynx to disperse long distances have resulted in many individual occurrence records outside of core areas, without accompanying evidence of historic or current presence of lynx populations. Areas classified as “**secondary areas**” are those with historical records of lynx presence with no record of reproduction; or areas with historical records and no recent surveys that document the presence of lynx and/or reproduction. We have one area of secondary habitat in the analysis area (Figure 1-1). Much of the secondary habitat is unoccupied. FWS hypothesizes that secondary areas may contribute to lynx persistence by providing habitat to support lynx during dispersal movements or other periods, allowing animals to then return to “core areas.”

In “**peripheral areas**” the majority of historical lynx records are sporadic and generally corresponds to periods following cyclic lynx population highs in Canada. There is no evidence of long-term presence or reproduction that might indicate colonization or sustained use of these areas by lynx. However, some of these peripheral areas may provide habitat enabling the successful dispersal of lynx between populations or subpopulations. We have four areas of peripheral habitat in the analysis area (Figure 1-1). At this time, FWS does not have enough information to clearly define the relative importance of secondary or peripheral areas to the persistence of lynx in the contiguous United States (USDI FWS 2005, USDI FWS 2007).

In the Recovery Outline, FWS presented four preliminary recovery objectives. Below, we summarize FWS findings (USDI FWS 2007) of how the selected alternative meets the recovery objectives.

**Preliminary recovery objective 1:** *Retain adequate habitat of sufficient quality to support the long-term persistence of lynx populations within each of the identified core areas.*

FWS concludes the selected alternative fulfills this objective and adequately manages the two core areas within the planning area to support lynx recovery. The selected alternative supports the long-term persistence of lynx populations within the Northwestern Montana/Northeastern Idaho and Greater Yellowstone core areas, which constitutes one third of the core areas nationwide (USDI FWS 2007).

**Preliminary recovery objective 2:** *Ensure that sufficient habitat is available to accommodate the long-term persistence of immigration and emigration between each core area and adjacent populations in Canada or secondary areas in the United States.*

FWS concludes the selected alternative contributes to this recovery objective in part.

Lynx have the ability to move great distances, through varied terrain and habitat. Dispersing lynx use a variety of habitats and prey resources compared to lynx attempting to establish a home range and territory (USDI FWS 2007).

Connectivity between the United States and Canada appears intact thus far, as the Northwestern Montana/Northeastern Idaho core area is directly adjacent to Canada

and includes Glacier Park along its northeastern edge. The selected alternative provides and conserves core area lynx habitat directly adjacent to and contiguous with lynx habitat in Canada. Such habitat should accommodate both immigration of lynx from Canada and emigration from core areas to secondary areas or Canada.

The selected alternative applies to all core areas and occupied secondary areas. The direction includes objectives, standards, and guidelines to actively maintain or restore lynx habitat connectivity in and between linkage areas and LAUs (lynx home ranges). Because these measures apply in both core and occupied secondary areas, the selected alternative clearly meets the recovery objective of accommodated long-term connectivity across these broad areas.

The selected alternative is less clear in its effects in unoccupied secondary areas between the Northwestern Montana/Northeastern Idaho and Greater Yellowstone core areas. The management direction will not be applied to these areas until they become occupied. In the meantime existing plan direction will be followed.

Information indicates the likely impact of projected vegetation management on connectivity in this area may not be excessive. Fuel treatment projects in unoccupied habitat would likely occur in no more than two to three percent of all lynx habitat on any forest in secondary areas (FEIS Vol. 1, p. 195, USDI FWS 2007). In unoccupied areas precommercial thinning could occur on about 67,000 acres (about 1 percent) with full funding and 23,000 acres (0.4 percent) or less with projected funding. Timber harvest in unoccupied areas could result in creating stand initiation openings in more than 30 percent of an LAU. However, very few LAUs exceed this amount now and those that were in excess were in that condition due to past wildfires (FEIS, Vol. p. 155).

Information regarding projected timber harvest was not available, but based on the past harvest history (Project File/Forests/FEIS/Data) it is unlikely regeneration harvest will occur to the same levels it did historically (1970s and 1980s). Based on this, FWS found vegetation management, under existing plan direction, would not preclude connectivity or opportunistic foraging conditions (USDI FWS 2007).

Development is another factor that may impede lynx movement. Four ski areas, affecting about 3,800 acres occur on National Forest System lands, in unoccupied secondary habitat; two of the four are planning expansions. None of these ski areas impede connectivity of lynx habitat at this time (USDI FWS 2007).

Connectivity for lynx could be more impacted by development such as highway expansions. Under existing plans and national efforts, methods to provide for safe wildlife crossings are currently being researched by all state highway departments and are being incorporated into highway improvements (FEIS, Vol. 1 p. 294-295).

In secondary unoccupied habitat, units should consider the management direction until such time the area becomes occupied. Given the estimates of projected impacts and the best information available regarding lynx dispersal movements, FWS concluded that under existing plan direction, these unoccupied secondary areas would reasonably be

expected to provide adequate connectivity and opportunistic foraging habitat for lynx to allow dispersal (USDI FWS 2007).

**Preliminary recovery objective 3:** *Ensure habitat in secondary areas remain available for continued occupancy by lynx.*

FWS found the selected alternative contributes to this recovery objective in part.

The recovery outline discusses the relative importance of core and secondary areas to lynx recovery. The selected alternative will fully provide management direction in occupied lynx habitat – both core and secondary. This measure ensures habitat in currently occupied secondary habitat remains available for continued occupancy by lynx.

The forests should consider the management direction in currently unoccupied secondary habitat. As noted in Objective 3, management actions could adversely affect unoccupied secondary lynx habitat. If and when lynx attempt to establish home ranges in secondary areas, individual lynx could be affected. It is also important to note that about 70 percent of unoccupied secondary lynx habitat in the planning area is in roadless or wilderness status where forest management actions are minimal and natural processes predominate.

Occupancy could occur if lynx populations in core areas were to expand, as periodically happens in lynx populations in Canada. However, given the projected impacts described in Objective 3, non-developmental areas, and existing habitat conditions, FWS believes it is reasonable to expect some lynx would occupy these secondary areas despite lack of mandatory direction in plans, but at a lower density than core. Further, if detected, once lynx occupy a previously unoccupied area, the management direction will apply. In the meantime, our vegetation management actions may degrade lynx habitat, but resulting conditions are typically temporary, not permanent. The risks of most vegetation management actions, such as timber harvest, precommercial thinning and other modifications of habitat, are reversible since typically forests regenerate overtime, with or without active restoration. Based on this FWS found lynx habitat on National Forests System lands in secondary areas will likely remain available for recovery of lynx over time (USDI FWS 2007).

The Opinion goes on to say the selected alternative does not fulfill Objective 3 entirely, as it lacks requirements for further or continued monitoring or surveying of unoccupied secondary areas for the amount and condition of lynx habitat and lynx presence, as recommended in the recovery outline.

However, through this decision we agree to work with the FWS to develop and complete a protocol to survey and to develop a method to monitor the amount and condition of lynx habitat in unoccupied secondary habitat. Our agreement to these items will aid in fulfilling Objective 3.



**Preliminary recovery objective 4:** *Ensure threats have been addressed so that lynx populations will persist in the contiguous United State for at least the next 100 years.*

FWS found that although plans do not apply for 100 years and thus cannot directly fulfill this objective, the selected alternative will allow lynx populations to persist on lands within core areas in the planning area within the foreseeable future. The selected alternative addresses the threat to the distinct population segment (DPS), inadequate regulatory measures, within core areas in the planning area by limiting, reducing or avoiding major adverse impacts of federal land management on lynx, as well as several other impacts or influences that do not rise to the level of a threat to the DPS. Further, a large portion of lynx habitat within the planning area (67 percent) remains in non-developmental status, where natural processes predominate. Finally, unoccupied lynx habitat within secondary and peripheral lynx areas is likely to retain habitat that provides opportunistic foraging habitat and connectivity adequate for dispersal of lynx, despite the lack of specific direction for lynx habitat management (USDI FWS 2007).

## **Findings Required by Laws, Regulation, and Policies**

### **National Environmental Policy Act**

The National Environmental Policy Act (NEPA) requires analysis of decisions to ensure the anticipated effects on the environment within the analysis area are considered prior to implementation (40 CFR 1502.16). The analysis for the Northern Rockies Lynx Management Direction followed the NEPA guidelines as provided by the Council on Environmental Quality. Alternatives were developed based on the Purpose and Need, the primary issues, public comments, lynx needs as identified by the LCAS, research, and other publications. A total of six alternatives were considered in detail, including the No Action Alternative as required by NEPA (FEIS, pp. 26 to 69 and 107 to 134). Additional management direction was considered but eliminated from detailed study (FEIS, pp. 71 to 106). The range of alternatives is appropriate given the scope of the proposal, the public issues expressed, and the Purpose and Need for action (FEIS, Chapter 1).

### ***Unavoidable adverse effects***

The selected alternative does not represent an irreversible or irretrievable commitment of resources. Any disturbance to resources cannot occur without further site-specific analyses, section 7a consultation required under ESA and decision documents. For a detailed discussion of effects of this decision, see Chapter 3 of the FEIS (pp. 135 to 350).

### ***Environmentally preferable alternative(s)***

Regulations implementing NEPA require agencies to specify “the alternative or alternatives which are considered to be environmentally preferable” (40 CFR 1505.2(b)). The environmentally preferable alternative causes the least damage to the biological and physical environments and best protects, preserves, and enhances historical,

cultural, and natural resources. Based on the description of the alternatives considered in detail in the FEIS and in this ROD, we determined the selected alternative best meets the goals of Section 101 of the NEPA, and is therefore the environmentally preferable alternative for this proposed federal action.

FWS found timber harvest can be beneficial, benign, or detrimental depending on harvest method, and the spatial and temporal occurrence on the landscape (FEIS, Vol. 1, Appendix P). The vegetation standards in the selected alternative ensure the timber management program is beneficial to lynx. Standard VEG S1 limits the amount of lynx habitat that is in the stand initiation stage to 30 percent of each LAU at any time, ensuring a continuous rotation of all forest stages through time that supply lynx habitat in each LAU (FEIS, Vol. 2, p. 60). Standard VEG S2 allows no more the 15 percent of the lynx habitat to change to the stand initiation stage through timber harvest in a 10-year period. This limits the rate of change within an LAU to ensure sufficient habitat for lynx through time.

Precommercial thinning can impact lynx habitat. Standard VEG S5 precludes precommercial thinning except in certain situations that FWS has determined would have little effect upon lynx or their habitat, but would advance natural ecological conditions (FWS comment letter on the DEIS, pp. 8 and 9). While these exceptions have little effect on lynx (0.5 percent of lynx habitat) they have important positive impacts on other resources and situations such as maintaining aspen, western white pine, and whitebark pine, and fuel reduction near buildings.

Since the LCAS was published it has become clear that multistory mature stands with dense horizontal cover are important to lynx. In the selected alternative, Standard VEG S6 is instrumental in maintaining winter snowshoe hare habitat in multistoried forests which will aid in lynx persistence.

The selected alternative allows for management of fuels in the WUI under Guideline VEG G10, rather than standards. Under VEG G10 fuel reduction projects in the WUI should consider the VEG standards, but may deviate from them, up to a cap of 6 percent of the lynx habitat on each National Forest. Lynx habitat is still considered; however, if the fuel reduction needs are such that any of the four VEG standards cannot be met while at the same time meeting fuel treatment objective, the project may proceed under Guideline VEG G10. Fuel treatment actions in 94 percent of the lynx habitat must follow the VEG standards, while at the same time fuel treatment projects in the WUI can protect other valuable resources.

The selected alternative contains guidelines for the various activities on National Forest System land that may have possible adverse affects on individual lynx. Standards were changed to guidelines when the best available information indicated the action was not likely to adversely affect lynx, or not likely to adversely affect lynx in most cases (i.e. where no conclusive or reliable information supported the standard in the LCAS).

The selected alternative contributes to lynx conservation and recovery on National Forest System lands, but allows for management of other resources. Considering all this, the selected alternative is the environmentally preferred alternative because it causes the least damage to the biological and physical environments and best protects, preserves, and enhances natural resources.

### **National Forest Management Act**

*Significance determination:* The purpose of this proposal is to incorporate management direction into plans for the conservation and recovery of Canada lynx.

In January 2005, the Forest Service removed the November 9, 2000 National Forest System Land and Resource Management Planning Regulations at 36 CFR 219, subpart A and replaced them with newly adopted regulations. The new regulations set forth a process for land management planning, including the process for developing, amending, and revising land management plans (36 CFR 219.1). These regulations also incorporate effective dates and transition periods. Section 219.4(e) says “Plan development, plan amendments or plan revision initiated before the transition period (starting January 5, 2005) may continue to use the provisions of the planning regulations in effect before November 9, 2000” – in this case the 1982 regulations. This proposal was initiated on September 11, 2001, which is before the transition period; therefore it is being completed under the requirements of the 1982 regulations.

The National Forest Management Act (NFMA) provides that forest plans may be amended in any manner, but if the management direction results in a significant change in the plan, the same procedure as that required for development and approval of a plan shall be followed. The 1982 regulations at 36 CFR 219.10(f) requires the agency to determine whether or not a proposed amendment will result in a significant change in the plan. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, then the agency may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures.

Forest Service Manual (FSM) 1920, section 1926.5 (Jan. 31, 2006) identifies factors to consider in determining whether an amendment is significant or non-significant for those plans using planning regulations in effect before November 9, 2000.

Changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities.

Examples of significant changes include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected.
2. Changes that may have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.

The selected alternative will change in plans similar to examples of non-significant changes #1 and #3. The effects of this decision are not similar to either example of significant plan changes. These findings are discussed in further detail below.

Under the selected alternative the management direction will only apply to occupied habitat. At this time the Beaverhead-Deerlodge, Bitterroot, Nez Perce, Salmon-Challis, Ashley and Bighorn NFs are unoccupied; therefore these units should consider the management direction but will not have to apply it. Several mountain ranges on the Custer, Gallatin, Helena, and Lewis and Clark NFs are also unoccupied and the management direction will not have to be applied in these areas until lynx occupy the site. However, since the selected alternative could be applied to all units at some point in time, the following analyzes the effects on the planning area as a whole.

*Changes in standards and guidelines are minor*

The selected alternative adds one goal to forest plans; conserve Canada lynx. This goal is consistent with other goals in existing plans and other legal requirements to provide for habitat needs for threatened and endangered species. The selected alternative adds several objectives to the plans. These objectives require consideration of natural ecosystem process and functions, and consideration of lynx habitat needs. The additional objectives provide more species-specific guidance but do not alter the overall objectives to provide for habitat needs for threatened and endangered species. The proposal does not change any Management Area (MA) designation.

The selected alternative adds seven standards and twenty-four guidelines. The addition of these new standards and guidelines are minor as discussed below.

*Changes would not significantly alter the long-term relationship between levels of multiple-use goods and services originally projected.*

The management direction would not substantially alter outputs for grazing, minerals, energy, transportation systems, developed recreation areas, such as ski areas or winter recreation. These activities will not be prohibited by the management direction; however, habitat needs for lynx will need to be considered when managing these resources. The new direction will also not substantially alter timber outputs, even though it may affect growth and yield.

The selected alternative limits precommercial thinning in winter snowshoe hare habitat in young regenerating forests, with some exceptions – see Standard VEG S5. Precommercial thinning is allowed to restore aspen, whitebark pine and planted rust-

resistant western white pine. Precommercial thinning will also be allowed if new research indicates it will benefit or only have short-term adverse effects to lynx. Precommercial thinning is not allowed in young regenerating lodgepole pine forests, unless new research indicates it is beneficial or benign. Limiting precommercial thinning in lodgepole pine forests could affect growth and yield, and the potential to produce some products in the future, because these forests tend to stop growing if not thinned; however overall cubic foot volume would not be affected.

The Beaverhead-Deerlodge and the Bridger-Teton are the only units that have a majority of their precommercial thinning identified over the next ten years in lynx habitat and in lodgepole pine; therefore they are the only units that could see a reduction to growth and yield (FEIS, Vol. 1, Appendix K-5). Under current programs, the units only have accomplished a portion of their thinning program (approximately 34 percent) due to budgets, so it is difficult to tease out the effects from the management direction in this proposal from effects of budgets. In addition, Standard VEG S5 allows for consideration of new information. Over the next ten to fifteen years information may become available that indicates some precommercial thinning in lodgepole pine forests may be beneficial to snowshoe hare (see DEIS comment letter #505).

Limiting precommercial thinning is unlikely to affect long-term sustained yield (LTSY), as defined by NFMA and FSH 1909.12, Chapter 60.5, because the cubic foot volume on the site does not substantially change. The volume is spread among more, smaller trees without thinning versus fewer, larger diameter trees with thinning. In addition, some precommercial thinning may be allowed in the future if new information becomes available. Timber outputs have never been at the level of LTSY over the life of these plans, so changes in LTSY are unlikely to lead to changes in outputs, especially if outputs are measured in cubic feet, which is the appropriate measure of LTSY.

In addition, the ASQ should not be affected on any units because the management direction does not preclude timber harvest. Standards VEG S1 and S2 may defer regeneration harvest in some areas, but Guideline VEG G1 encourages projects creating winter snowshoe hare habitat where it is lacking. It is likely there would be no change in overall timber outputs, but there may be changes in what material is harvested and where.

*Changes would not have an important effect on the entire land management plan or affect land and resources throughout a large portion of the planning area during the planning period.*

There are approximately 38.5 million acres within the 18 National Forests in the planning area. Of this, approximately 18 million acres or 48 percent has been mapped as lynx habitat (see table 3.1). Of the 18 million acres of mapped lynx habitat, approximately 8 million acres are in land allocations that allow for management actions. Therefore the management direction only potentially affects about 20 percent of the planning area. The most noticeable effects are likely to be the location and amount of precommercial thinning. The potential acreage that could be affected is between 11,000 to 15,000 acres per year. This is less than one percent of the planning area. It should be

---

noted that precommercial thinning is not constrained on an additional 18,000 acres per year outside lynx habitat (FEIS, Vol. 1 p 247-248).

**Summary:** Considering the three factors, we determined this management direction is not a significant change under NFMA to the 18 forest plans because it imposes minor changes over a limited area of these national forests.

While this amendment is not significant, the planning process necessary for significant amendments is ongoing or will begin soon on most units affected by this decision. In particular interest to the precommercial thinning discussion on the previous page, both the Beaverhead-Deerlodge and Bridger-Teton National Forests are being revised. The Beaverhead-Deerlodge should complete the revision process in 2007. Their DEIS for the Forest Plan recognizes the cumulative contribution the Northern Rockies Lynx Amendment may have on reducing growth and yield (DEIS, page 326). The Bridger-Teton should complete its revision in 2008.

**Viability determination:** This management direction is being adopted in accordance with the 1982 NFMA regulations for amending land and resource management plans. Plan amendments initiated before January 5, 2005 may proceed using the provisions of these regulations. The transition period to regulations implementing the 2005 planning rule ends on a unit's establishment of an Environmental Management System, or no later than January 7, 2008.

According to the 1982 NFMA regulations, fish and wildlife habitat shall be managed to maintain viable populations of Canada lynx in the planning area (36 CFR 219.19, 2000). For the purpose of this decision, the planning area is the range of lynx encompassed by the national forests subject to this decision. This is based on a biological delineation of the Northern Rockies made in the LCAS.

A viable population is, "one which has the estimated numbers and distribution of reproductive individuals to insure its continued existence is well-distributed in the planning area." It is not possible to reliably predict future population demographics for lynx, and continued existence of lynx may be dependent on threats that exist outside of the planning area (health of Canadian populations, or linkage across other ownerships).

The national forests subject to this new direction will provide habitat to maintain a viable population of lynx in the Northern Rockies by maintaining the current distribution of occupied lynx habitat, and maintaining or enhancing the quality of that habitat. Based on the best scientific information available, and for the specific reasons provided below, this management direction will provide habitat to support persistence of lynx in the Northern Rockies in the long-term.

The LCAS was used as the basis for developing the selected alternative. The FWS Remand Notice (FEIS, Vol. 1, Appendix P), and other new information and research were also evaluated, and became the basis for updating standards and guidelines based upon the current state of knowledge regarding threats to lynx since the LCAS was compiled.



The greatest threats to lynx persistence and reproduction are from changes in vegetation structures that provide snowshoe hare habitat during summer and winter. Standards were developed under the selected alternative to provide direction for a variety of vegetation management activities that are most likely to affect lynx habitat (fuel treatments, precommercial thinning, timber harvest, etc.). These include standards for connectivity (ALL S1), habitat mapping (LAU S1), regeneration harvesting (VEG S2), precommercial thinning (VEG S5), and management of multistory mature and late successional forests (VEG S6). These standards are equal to or more protective than similar recommendations provided in the LCAS. In the Seeley Lake area of Montana, mature, spruce-fir forests with high horizontal cover are particularly important as winter foraging habitat and are more important than younger stands (Squires pers. com., Oct. 30, 2006) and the LCAS provides no specific management recommendations for these vegetative conditions within lynx habitat.

All of the core and secondary lynx habitat (100%) as defined in the *Recovery Outline* (USDI FWS 2005) that is occupied by lynx as defined in the *Occupied Mapped Lynx Habitat Amendment to the Canada Lynx Conservation Agreement* (USDA FS and USDI FWS 2006a) will be managed to conserve lynx.

The value of secondary habitat is unclear. The *Recovery Outline* (USDI FWS 2005) states “Compared to core areas, secondary areas have fewer and more sporadic current and historical records of lynx and, as a result, historical abundance has been relatively low. Reproduction has not been documented.” There currently is no evidence that suggest that unoccupied secondary habitat is considered necessary for a viable population of lynx. Secondary, unoccupied lynx habitat will have management direction implemented to conserve lynx if and when those administrative units become occupied. These National Forests (Beaverhead-Deerlodge, Bitterroot, Salmon-Challis and Nez Perce) which have secondary, unoccupied lynx habitat account for only about 30 percent of the total acres of core and secondary lynx habitat.

Even though the 6 percent limit (reflected in the vegetation standards) does not currently apply to unoccupied lynx habitat, those unoccupied forests would treat an average of 3.2 percent of lynx habitat within the WUI for fuel reduction over the next ten years (FEIS, Vol. 1, Lynx Section, and Appendix M). This is well below the 6 percent cap provided in the Biological Opinion (USDI FWS 2007). Overall fuel treatments, in and outside the WUI, in lynx habitat, average 5 percent within lynx habitat on these Forests.

In addition, The FWS Biological Opinion (2007) concluded that the proposed action is not likely to jeopardize the continued existence of lynx within the contiguous United States DPS. It also found the selected alternative will allow lynx populations to persist on lands in occupied core and secondary areas within the foreseeable future, and unoccupied secondary and peripheral habitat is likely to retain habitat that provides opportunistic foraging habitat and connectivity adequate for dispersal of lynx, despite the lack of specific direction for lynx management. The opinion goes on to say the

incorporation of the management direction over the large geographic area occupied by lynx within 12 of the 18 National Forests (12,150,000 acres) contributes to the landscape level direction necessary for the survival and recovery of lynx in the northern Rockies ecosystem.

## **Endangered Species Act**

The Endangered Species Act creates an affirmative obligation “. . . that all federal departments and agencies shall seek to conserve endangered and threatened species” of fish, wildlife, and plants. This obligation is further clarified in a National Interagency Memorandum of Agreement (August, 2000) which states our shared mission is to “. . . enhance conservation of imperiled species while delivering appropriate goods and services provided by the lands and resources.”

We completed biological assessments (BAs) for all listed species; one for wildlife and fish, and one for plants. For all listed species, except for Canada lynx, we determined the preferred alternative would have “no effect” or would be “not likely to adversely affect” them. The determination for Canada lynx was that, while the management direction in selected alternative would improve lynx conservation, the plans amended by selected alternative would still be “likely to adversely affect” lynx because individuals could be adversely affected as a result of the exemptions and exceptions to the vegetation standards for fuel treatments projects and precommercial thinning. The BAs were submitted to the FWS. The FS consulted with the FWS on the determinations and they concurred with the “no effect” and “not likely to adversely affect” determinations. The FWS provided written review as required by Section 7 of the ESA (USDI FWS 2007).

FWS issued a Biological Opinion on the “likely to adversely affect” determination on lynx (USDI FWS 2007). The opinion acknowledges the beneficial and adverse effects of the selected alternative. The opinion states that given the large number of acres covered by the proposed action, the existing plan language, and the beneficial effects of the management direction in the balance of these acres, the selected alternative is likely to have overall beneficial effects to lynx by addressing the primary threat identified at the time of listing: the inadequacy of existing regulatory mechanisms. Even acknowledging some adverse effects could still occur, primarily due to the allowance for fuel treatment projects and precommercial thinning, the opinion found the selected alternative is not likely to jeopardize the continued existence of Canada lynx. The Opinion identifies incidental take and reasonable and prudent measure, with associated terms and conditions to reduce take. These measures have either been incorporated into the management direction (TC 1, 2, and 3) or agreed to in this decision (TC 4).

Further section 7a consultation will occur on future site-specific projects and activities if they result in adverse affects to lynx. Future consultation will reference back to the BO issued on this decision to ensure the effects of the specific projects are commensurate with the effects anticipated in the opinion issued on this decision (USDI FWS 2007).

### ***Critical habitat***

On November 9, 2006, FWS published the final rule for the designation of Canada lynx critical habitat (Federal Register, Vol. 71, No. 217, pp. 66008 to 66061). National Forest System lands were not included in the critical habitat designation. There is no adverse modification to designated critical habitat from implementation of selected alternative.

### **National Historic Preservation Act**

This decision is a programmatic action and does not authorize site-specific activities. Projects undertaken following the management direction will comply fully with the laws and regulations that ensure protection of cultural resources. It is our determination this plan direction complies with the National Historic Preservation Act and other statutes that pertain to the protection of cultural resources.

### **Clean Air Act**

This decision is a programmatic action and does not authorize site-specific activities. Projects undertaken following the management direction will comply fully with the laws and regulations that ensure protection of air quality. It is our determination this plan direction complies with the Clean Air Act and other statutes that pertain to the protection of air quality.

### **Clean Water Act**

This decision is a programmatic action and does not authorize site-specific activities. Projects undertaken following the management direction will comply fully with the laws and regulations that ensure protection of water quality. It is our determination this plan direction complies with the Clean Water Act and other statutes that pertain to the protection of water quality.

### **Invasive Species (Executive Order 13112)**

Executive Order 13112 directs federal agencies not to authorize any activities that would increase the spread of invasive species. This decision is a programmatic action and does not authorize site-specific activities. We determined this plan direction complies with Executive Order 13112.

### **Environmental Justice (Executive Order 12898)**

Executive Order 12898 directs federal agencies to identify and address, as appropriate, any disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. We determined from the analyses disclosed in the FEIS that this plan direction complies with Executive Order 12898.

### **Prime Farmland, Rangeland, and Forest Land**

We determined from the analyses disclosed in the FEIS that prime farmland, rangeland, and forest land will not be affected by this decision because the selected alternative is a programmatic action and does not authorize site-specific activities.

### **Equal Employment Opportunity, Effects on Minorities, Women**

The FEIS describes the impacts to social and economic factors in Chapter 3. The selected alternative will not have a disproportionate impact on any minority or low-income communities. We determined the selected alternative will not differentially affect the civil rights of any citizens, including women and minorities.

### **Wetlands and Floodplains (Executive Orders 11988 and 11990)**

The selected alternative is a programmatic action and does not authorize site-specific activities. We determined the selected alternative will not have adverse impacts on wetlands and floodplains and will comply with Executive Orders 11988 and 11990.

### **Other policies**

The existing body of national direction for managing National Forest System lands remains in effect.

### **Implementation and appeal provisions**

The management direction will become effective 30 days after publication of the notice of availability of the FEIS in the Federal Register. Requests to stay implementation of the amended plans shall not be granted pursuant to 36 CFR 217.10.

This decision is subject to review pursuant to 36 CFR 217.3 (available at <http://www.fs.fed.us/r1/planning/lynx.html>). Any appeals must be postmarked or received by the Appeal Reviewing Officer within 45 days of the date the legal notices are published in the The Missoulian, the newspaper of record.

Appeals sent through the US Postal Service must be sent to:

USDA Forest Service  
Attn: EMC Appeals  
Mail Stop 1104  
1400 Independence Ave., SW  
Washington, DC 20250-1104

Appeals sent through FedEx, UPS, or a courier service must be sent to:

USDA Forest Service  
Ecosystem Management Coordination  
Attn: Appeals  
Yates Bldg., 3CEN  
201 14th Street, SW  
Washington, DC 20250

Appeals may be hand-delivered to the above address during regular business hours, 8:00 AM to 4:30 PM Monday through Friday, excluding holidays; or sent by fax to (202) 205-1012; or by email to [appeals-chief@fs.fed.us](mailto:appeals-chief@fs.fed.us). Emailed appeals must be submitted in rich text format (.rtf) or Word (.doc) and must include the decision name in the subject line. Any notice of appeal must be fully consistent with 36 CFR 217.9 and include at a minimum:

- A statement that the document is a Notice of Appeal filed pursuant to 36 CFR Part 217;
- The name, address, and telephone number of the appellant;
- Identify the decision to which the objection is being made;
- Identify the document in which the decision is contained, by title and subject, date of the decision, and name and title of the Deciding Officer;
- Specifically identify the portion(s) of the decision or decision document to which objection is made;
- The reasons for the appeal, including issues of fact, law, regulation, or policy and, if applicable, specifically how the decision violates law, regulation, or policy; and
- Identification of the specific change(s) in the decision that the appellant seeks.

## **Further information and contact person**

The Northern Rockies Lynx Management Direction FEIS, the Summary, this ROD and the FWS Biological Opinion, as well as other background documents are available on the Web at <http://www.fs.fed.us/r1/planning/lynx.html>.

For further information regarding the FEIS, ROD, or the plan direction for Canada lynx contact:

Timothy Bertram, Lynx Coordinator  
USDA Forest Service, Northern Region  
P.O. Box 7669  
Missoula, MT 59807  
Telephone: (406) 329-3611

***I am the Responsible Official for incorporating the Northern Rockies  
Lynx Management Direction into the Land and Resource Management  
Plans for the Bighorn and Shoshone National Forests in the Rocky  
Mountain Region of the Forest Service.***

*Rick D. Cables*

Rick D. Cables  
Regional Forester, Rocky Mountain Region


*March 21, 2007*

Date



Record of Decision -- Northern Rockies Lynx Management Direction

***I am the Responsible Official for incorporating the Northern Rockies Lynx Management Direction into the Land and Resource Management Plans for the Ashley, Bridger-Teton, Targhee, and Salmon-Challis National Forests in the Intermountain Region of the Forest Service.***

  
\_\_\_\_\_  
Jack G. Troyer  
Regional Forester, Intermountain Region

  
\_\_\_\_\_  
Date

Record of Decision – Northern Rockies Lynx Management Direction

***I am the Responsible Official for incorporating the Northern Rockies Lynx Management Direction into the Land and Resource Management Plans for the Beaverhead-Deerlodge, Bitterroot, Clearwater, Custer, Flathead, Gallatin, Helena, Idaho Panhandle, Kootenai, Lewis & Clark, Lolo, and Nez Perce National Forests in the Northern Region of the Forest Service.***

*Kathleen A. McAllister*

---

Kathleen A. McAllister  
Acting Regional Forester, Northern Region

*March 23, 2007*

---

Date

## References Cited

- Apps, C.D. 2000.** Space-use, diet, demographics and topographic associations of lynx in the southern Canadian Rocky Mountains: a study. Pages 351-371. Chapter 12. In Ruggiero, L.F., K. B. Aubry, S. Buskirk, G.M. Koehler, C.J. Krebs, K. S. McKelvey, and J. R. Squires, tech, eds. Ecology and conservation of lynx in the United States. University Press of Colorado. Boulder, CO. 480 p. **Brittel, J.D., R.J. Poelker, S.J., Sweeney, and G.M. Koehler. 1989.** "Native cats of Washington. " Unpublished report, Washington Department of Wildlife. Olympia, WA 169 p.
- Bailey, T.N. 1974.** Social organization in a bobcat population. J. Wildl. Manage. 38:435-446
- Buskirk, S.W., L.F. Ruggiero, and C.J. Krebs. 2000.** Habitat fragmentation and interspecific competition: implications for lynx conservation. Pages 83-100. Chapter 4. In Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, and J. R. Squires (Tech. Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado. Boulder, CO. 480 p.
- Bunnell, K. D., J. T. Flinders and M. L. Wolfe. 2006.** Potential impacts of coyotes and snowmobiles on lynx conservation in the Intermountain West. Wildlife Society Bulletin. 34(3):828-838.
- Finney, M.A. 2001.** Design of regular landscape fuel treatment patterns for modifying fire growth and behavior. For. Sci. 47(2):201-228.
- Hickenbottom, J. R., B. Summerfield, J. Aardahl, G. Halekas, M. Hilliard, L. Jackson, D. Prevedel, J. Rupe. 1999.** Biological assessment of the effects of National Forest land and resource management plans and bureau of land management land use plans on Canada lynx. U.S. Forest Service, Ogden Utah. 149 p.
- Hillis, M., A. Jacobs and V. Wright. 2003.** U. S. Forest Service region one Canada lynx assessment. Prepared by the National Fire Plan Cohesive Strategy Team. U.S. Forest Service, Northern Region. Missoula, Montana. 29 p.
- Idaho Transportation Department. 2004.** Truck drivers, motorists, dignitaries and wildlife celebrate completion of U.S. 95 (Copeland) project. The Transporter. Idaho Transportation Department. 2 pp.
- Koehler, G.M. and J.D. Brittel. 1990.** Managing spruce-fir habitat for lynx and snowshoe hares. J.Forestry 88:10-14.
- Kolbe, J. A., J. R. Squires, D. H. Pletscher and L. F. Ruggiero. In press.** The effect of snowmobile trails on coyote movements within lynx home ranges. J. Wildlife Management.
- McKelvey, K.S., K.B. Aubry, and Y.K. Ortega. 2000.** History and distribution of lynx in the contiguous United States. Pages 207-264. Chapter 8. In Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, and J.R. Squires (Tech Eds). Ecology and conservation of lynx in the United States. Univ. Press of Colorado. Boulder, CO. 480 p.
- Montana Department of Transportation, Federal Highway Administration, and Confederated Salish and Kootenai Tribes. 2006.** US 93 Ninepipe/Ronan Improvement

Project DSEIS and Draft Section 4(f) Evaluation. 574 pp – specifically reference pages 3-8 to 3-18 which discuss wildlife crossings

[http://www.mdt.mt.gov/pubinvolve/docs/eis\\_ea/eis\\_ninepipe.pdf](http://www.mdt.mt.gov/pubinvolve/docs/eis_ea/eis_ninepipe.pdf)

- Mowat G., K.G. Poole, and M. O'Donoghue. 2000.** Ecology of lynx in northern Cascades and Alaska. Pages 265-306. Chapter 9. In Ruggiero, L. F., K. B. Aubry, S. W. Buskirk, G. M. Koehler, C. J. Krebs, K. S. McKelvey, and J. R. Squires (Tech. Eds.). Ecology and conservation of lynx in the United States. University Press of Colorado. Boulder, CO. 480 p.
- Murray, D. L., S. Boutin and M. O'Donoghue. 1994.** Winter habitat selection by lynx and coyotes in relation to snowshoe hare abundance. *Can. J. Zool.* 72:1444-1451.
- Roe, N.A., K.G. Poole and D.L. Day. 2000.** "A review of lynx behavior and ecology and its application to ski area planning and management." Unpublished report. IRIS Environmental Systems. Calgary, Alberta. 62 p.
- Ruediger, B. 1996.** The relationship between rare carnivores and highways. Pages 24-38. In G. Evink, D. Zielger, P. Garret, and J. Berry (eds). Transportation and wildlife: reducing wildlife mortality/improving wildlife passages across transportation corridors. Proc. Transportation-Related Wildlife Mortality Seminar. 30 April- 2 May 1996, Orlando, FL. Florida Dept. Trans./Fed. Highway Admin.
- Ruediger, B.J. Claar, S. Gniadek, B. Holt, L. Lewis, S. Mighton, B. Naney, G. Patton, T. Rinaldi, J. Trick, A. Vandehey, F. Wahl, N. Warren, D. Wenger, and A. Williamson. 2000.** Canada lynx conservation assessment and strategy (LCAS). USDA Forest Service, USDI Fish and Wildlife Service, USDI Bureau of Land Management, and USDI National Park Service. Publication Number R1-00-53, Missoula, MT. 142 p.
- Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, G.M. Koehler, C.J. Krebs, K.S. McKelvey, and J.R. Squires, tech. eds. 2000.** Ecology and conservation of lynx in the United States. University Press of Colorado. Boulder, CO. 480 pp.
- Squires, J. 2006.** Wildlife Research biologist, Rocky Mountain Research Station, Missoula MT.
- Todd A. W., L.B. Keith and C.A. Fischer. 1981.** Population ecology of coyotes during a fluctuation of snowshoe hares. *J. Wildl. Manage.* 45:629-640.
- USDA Forest Service, 1998.** Northern Region overview---summary and detailed report. Northern Region, USDA Forest Service, Missoula, MT. 263 p.
- USDA Forest Service. 2001.** A collaborative approach for reducing wildland fire risks to communities and the environment. 10-year comprehensive strategy. August 2001. U.S. Forest Service, Washington Office, Washington DC. 21 p.
- USDA Forest Service, USDI Bureau of Land Management, Fish and Wildlife Service, National Park Service, the National Association of State Foresters and the National Association of Counties. 2003.** Memorandum of Understanding for the development of a collaborative fuels treatment program. USFS Agreement #03-MU-11132001-023. 5 p.
- USDA Forest Service and USDI Fish and Wildlife Service. 2000.** Canada lynx conservation agreement. USFS Agreement #00-MU-11015600-013. Missoula, MT. Unpublished. 12 p.
- USDA Forest Service and USDI Fish and Wildlife Service. 2005.** Canada Lynx conservation Agreement. USFS Agreement #00-MU-11015600-013. Missoula, MT. Unpublished. 9 p.

- USDA Forest Service and USDI Fish and Wildlife Service. 2006a.** Occupied mapped Lynx habitat Amendment to the Canada Lynx Conservation Agreement. Unpublished. 5 pp.
- USDA Forest Service and USDI Fish and Wildlife Service. 2006b.** Canada Lynx Conservation Agreement. USFS Agreement #00-MU-11015600-013. Missoula, MT. Unpublished. 13 p.
- USDI Fish and Wildlife Service. 2000a.** Biological opinion on the effects of National Forest Land and Resource Management Plans and Bureau of Land Management Land Use Plans on Canada lynx (*Lynx canadensis*) in the contiguous United States. USDI, Fish and Wildlife Service, Denver, Colorado. 70 p. + appendix.
- USDI Fish and Wildlife Service. 2000b.** Endangered and threatened animals and plants; determination of threatened status for the contiguous U.S. distinct population segment of the Canada lynx and related rule. Federal Register March 24, 2000. Vol. 65, No. 58, pages 16051-16086.
- USDI Fish and Wildlife Service. 2003.** Endangered and Threatened Wildlife and Plants; notice of remanded determination of status for the contiguous United States distinct population segment of the Canada lynx; clarifications of findings; final rule. 50 CFR Part 17. Federal Register Vol. 68, No. 128. pp 40076-40101.
- USDI Fish and Wildlife Service. 2005.** Recovery Plan Outline: Contiguous United States distinct population segment of the Canada lynx. Unpublished. Montana Field Office, Helena, Montana. 21 pp.
- USDI Fish and Wildlife Service. 2007.** Biological Opinion on the Effects of the Northern Rockies Lynx Amendment on the Distinct Population Segment (DPS) of Canada lynx (*Lynx Canadensis*) in the contiguous United States. Unpublished. Montana Field Office, Helena, Montana. 85 pp.
- USDI, USDA Forest Service. 2006.** Protecting People and Natural Resources; A Cohesive Fuels Treatment Strategy. 59 pp.
- USDOT Federal Highway Administration. 2006.** Eco-logical: An ecosystem approach to developing infrastructure projects. 99 p.  
(<http://www.environment.fhwa.dot.gov/ecological/ecological.pdf>)
- Wyoming Department of Transportation. 2005.** Statewide Long-range Transportation Plan. Wyoming Department of Transportation. 84 pp.

# **ATTACHMENT 1**



## **Northern Rockies Lynx Management Direction**

The following management direction applies to all National Forest System lands that are known to be **occupied** by Canada lynx. At the time of this decision the following National Forests in the Northern Rockies lynx planning area are known to be occupied: Bridger-Teton, Clearwater, Custer, Flathead, Idaho Panhandle, Kootenai, Lolo, Shoshone, Targhee. Portions of the Custer, Gallatin, Helena, and Lewis & Clark are also occupied.

The following National Forests in the Northern Rockies lynx planning area are **not occupied** by Canada lynx: Ashley, Beaverhead-Deerlodge, Bighorn, Bitterroot, Nez Perce, Salmon-Challis. In addition, isolated mountain ranges on the Custer, Gallatin, Helena and Lewis and Clark are unoccupied – see Figure 1-1. Until such time as these National Forest System lands become occupied they should consider the following management direction, but are not required to follow it.

### **GOAL<sup>14</sup>**

Conserve the Canada lynx.

**ALL MANAGEMENT PRACTICES AND ACTIVITIES (ALL).** The following objectives, standards, and guidelines apply to all management projects in lynx habitat in lynx analysis units (LAUs) in occupied habitat and in linkage areas, subject to valid existing rights. They do not apply to wildfire suppression, or to wildland fire use.

#### Objective<sup>30</sup> ALL O1

Maintain<sup>26</sup> or restore<sup>40</sup> lynx habitat<sup>23</sup> connectivity<sup>16</sup> in and between LAUs<sup>21</sup>, and in linkage areas<sup>22</sup>.

#### Standard<sup>44</sup> ALL S1

New or expanded permanent development<sup>33</sup> and vegetation management<sup>49</sup> projects<sup>36</sup> must maintain<sup>26</sup> habitat connectivity<sup>16</sup> in an LAU<sup>21</sup> and/or linkage area<sup>22</sup>.

#### Guideline<sup>15</sup> ALL G1

Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways<sup>18</sup> or forest highways<sup>12</sup> across federal land. Methods could include fencing, underpasses, or overpasses.

#### Standard<sup>44</sup> LAU S1

Changes in LAU<sup>21</sup> boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.

**VEGETATION MANAGEMENT ACTIVITIES AND PRACTICES (VEG).** The following objectives, standards, and guidelines apply to vegetation management projects<sup>36</sup> in lynx habitat within lynx analysis units (LAUs) in occupied habitat. With the exception of Objective VEG O3 that specifically concerns wildland fire use, the objectives, standards, and guidelines do not apply to wildfire suppression, wildland fire use, or removal of vegetation for permanent developments such as mineral operations, ski runs, roads, and the like. None of the objectives, standards, or guidelines apply to linkage areas.

Objective<sup>30</sup> VEG O1

Manage vegetation<sup>49</sup> to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.

Objective VEG O2

Provide a mosaic of habitat conditions through time that support dense horizontal cover<sup>19</sup>, and high densities of snowshoe hare. Provide winter snowshoe hare habitat<sup>51</sup> in both the stand initiation structural stage and in mature, multi-story conifer vegetation.

Objective VEG O3

Conduct fire use<sup>11</sup> activities to restore<sup>40</sup> ecological processes and maintain or improve lynx habitat.

Objective VEG O4

Focus vegetation management<sup>49</sup> in areas that have potential to improve winter snowshoe hare habitat<sup>51</sup> but presently have poorly developed understories that lack dense horizontal cover.

Standard<sup>44</sup> VEG S1

**Where and to what this applies:** Standard VEG S1 applies to all vegetation management<sup>49</sup> projects<sup>36</sup> that regenerate<sup>38</sup> forests, except for fuel treatment<sup>13</sup> projects<sup>36</sup> within the wildland urban interface<sup>50</sup> (WUI) as defined by HFRA<sup>17</sup>, subject to the following limitation:

Fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest). *In addition, fuel treatment projects may not result in more than three adjacent LAUs exceeding the standard.*

For fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> see guideline VEG G10.

**The standard:** Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages<sup>45</sup> limit disturbance in each LAU as follows:

If more than 30 percent of the lynx habitat in an LAU is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects<sup>36</sup>.

#### Standard VEG S2

**Where and to what this applies:** Standard VEG S2 applies to all timber management<sup>47</sup> projects<sup>36</sup> that regenerate<sup>38</sup> forests, except for fuel treatment<sup>13</sup> projects<sup>36</sup> within the wildland urban interface<sup>50</sup> (WUI) as defined by HFRA<sup>17</sup>, subject to the following limitation:

Fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest).

For fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> see guideline VEG G10.

**The standard:** Timber management<sup>47</sup> projects<sup>36</sup> shall not regenerate<sup>38</sup> more than 15 percent of lynx habitat on NFS lands within an LAU in a ten-year period.

#### Standard VEG S5

**Where and to what this applies:** Standard VEG S5 applies to all precommercial thinning<sup>35</sup> projects<sup>36</sup>, except for fuel treatment<sup>13</sup> projects<sup>36</sup> that use precommercial thinning as a tool within the wildland urban interface<sup>50</sup> (WUI) as defined by HFRA<sup>17</sup>, subject to the following limitation:

Fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest).

For fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> see guideline VEG G10.

**The Standard:** Precommercial thinning projects<sup>36</sup> that reduce snowshoe hare habitat may occur from the stand initiation structural stage<sup>45</sup> until the stands no longer provide winter snowshoe hare habitat only:

1. Within 200 feet of administrative sites, dwellings, or outbuildings; or
2. For research studies<sup>39</sup> or genetic tree tests evaluating genetically improved reforestation stock; or
3. Based on new information that is peer reviewed and accepted by the regional level of the Forest Service, and state level of FWS, where a written determination states:
  - a. that a project<sup>36</sup> is not likely to adversely affect lynx; or
  - b. that a project<sup>36</sup> is likely to have short term adverse effects on lynx or its habitat, but would result in long-term benefits to lynx and its habitat; or
4. For conifer removal in aspen, or daylight thinning<sup>5</sup> around individual aspen trees, where aspen is in decline; or

5. For daylight thinning of planted rust-resistant white pine where 80 % of the winter snowshoe hare habitat<sup>51</sup> is retained; or
6. To restore whitebark pine.

*Exceptions 2 through 6 shall only be utilized in LAUs where Standard VEG S1 is met.*

#### Standard VEG S6

**Where and to what this applies:** Standard VEG S6 applies to all vegetation management<sup>49</sup> projects<sup>36</sup> except for fuel treatment<sup>13</sup> projects<sup>36</sup> within the wildland urban interface<sup>50</sup> (WUI) as defined by HFRA<sup>17</sup>, subject to the following limitation:

Fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> that do not meet Standards VEG S1, VEG S2, VEG S5, and VEG S6 shall occur on no more than 6 percent (cumulatively) of lynx habitat on each administrative unit (a unit is a National Forest).

For fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> see guideline VEG G10.

**The Standard:** Vegetation management projects<sup>36</sup> that reduce snowshoe hare habitat in multi-story mature or late successional forests<sup>29</sup> may occur only:

1. Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or
2. For research studies<sup>39</sup> or genetic tree tests evaluating genetically improved reforestation stock; or
3. For incidental removal during salvage harvest<sup>42</sup> (e.g. removal due to location of skid trails).

*Exceptions 2 and 3 shall only be utilized in LAUs where Standard VEG S1 is met.*

(NOTE: Timber harvest is allowed in areas that have potential to improve winter snowshoe hare habitat but presently have poorly developed understories that lack dense horizontal cover [e.g. uneven age management systems could be used to create openings where there is little understory so that new forage can grow]).

#### Guideline VEG G1

Vegetation management<sup>49</sup> projects<sup>36</sup> should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority for treatment should be given to stem-exclusion, closed-canopy structural stage<sup>46</sup> stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat<sup>51</sup> should be near denning habitat<sup>6</sup>.

#### Guideline VEG G4

Prescribed fire<sup>34</sup> activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.

Guideline VEG G5

Habitat for alternate prey species, primarily red squirrel<sup>37</sup>, should be provided in each LAU.

Guideline VEG G10

Fuel treatment projects<sup>36</sup> within the WUI<sup>50</sup> as defined by HFRA<sup>17</sup> should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.

Guideline VEG G11

Denning habitat<sup>6</sup> should be distributed in each LAU in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees (“jack-strawed” piles). If denning habitat appears to be lacking in the LAU, then projects<sup>36</sup> should be designed to retain some coarse woody debris<sup>4</sup>, piles, or residual trees to provide denning habitat<sup>6</sup> in the future.

**LIVESTOCK MANAGEMENT (GRAZ): The following objectives and guidelines apply to grazing projects in lynx habitat in lynx analysis units (LAUs) in occupied habitat. They do not apply to linkage areas.**

Objective<sup>30</sup> GRAZ O1

Manage livestock grazing to be compatible with improving or maintaining<sup>26</sup> lynx habitat<sup>23</sup>.

Guideline<sup>15</sup> GRAZ G1

In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.

Guideline GRAZ G2

In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.

Guideline GRAZ G3

In riparian areas<sup>41</sup> and willow carrs<sup>3</sup>, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages<sup>28</sup>, similar to conditions that would have occurred under historic disturbance regimes.

Guideline GRAZ G4

In shrub-steppe habitats<sup>43</sup>, livestock grazing should be managed in the elevation ranges of forested lynx habitat in LAUs<sup>21</sup>, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

**HUMAN USE PROJETS (HU):** The following objectives and guidelines apply to human use projects, such as special uses (other than grazing), recreation management, roads, highways, and mineral and energy development, in lynx habitat in lynx analysis units (LAUs) in occupied habitat, subject to valid existing rights. They do not apply to vegetation management projects or grazing projects directly. They do not apply to linkage areas.

Objective<sup>30</sup> HU O1

Maintain<sup>26</sup> the lynx's natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat<sup>23</sup>.

Objective HU O2

Manage recreational activities to maintain lynx habitat and connectivity<sup>16</sup>.

Objective HU O3

Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.

Objective HU O4

Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation<sup>9</sup> sites or ski areas.

Objective HU O5

Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat.

Objective HU O6

Reduce adverse highway<sup>18</sup> effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity<sup>16</sup>, and to reduce the potential of lynx mortality.

Guideline<sup>15</sup> HU G1

When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris<sup>4</sup>, so winter snowshoe hare habitat<sup>51</sup> is maintained.

Guideline HU G2

When developing or expanding ski areas, lynx foraging habitat should be provided consistent with the ski area's operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.

Guideline HU G3

Recreation developments and operations should be planned in ways that both provide for lynx movement and maintain the effectiveness of lynx habitat<sup>23</sup>.

Guideline HU G4

For mineral and energy development sites and facilities, remote monitoring should be encouraged to reduce snow compaction.



Guideline HU G5

For mineral and energy development sites and facilities that are closed, a reclamation plan that restores<sup>40</sup> lynx habitat should be developed.

Guideline HU G6

Methods to avoid or reduce effects on lynx should be used in lynx habitat<sup>23</sup> when upgrading unpaved roads to maintenance levels 4 or 5, if the result would be increased traffic speeds and volumes, or a foreseeable contribution to increases in human activity or development.

Guideline HU G7

New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity<sup>16</sup>. New permanent roads and trails should be situated away from forested stringers.

Guideline HU G8

Cutting brush along low-speed<sup>25</sup>, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.

Guideline HU G9

On new roads built for projects<sup>36</sup>, public motorized use should be restricted. Effective closures should be provided in road designs. When the project<sup>36</sup> is over, these roads should be reclaimed or decommissioned, if not needed for other management objectives.

Guideline HU G10

When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat<sup>10</sup>, if it has been identified as a need.

Guideline HU G11

Designated over-the-snow routes or designated play areas should not expand outside baseline areas of consistent snow compaction<sup>1</sup>, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an LAU basis, or on a combination of immediately adjacent LAUs.

This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12.

Use the same analysis boundaries for all actions subject to this guideline.

Guideline HU G12

Winter access for non-recreation special uses and mineral and energy exploration and development, should be limited to designated routes<sup>8</sup> or designated over-the-snow routes<sup>7</sup>.

**LINKAGE AREAS (LINK):** The following objective, standard, and guidelines apply to all projects within linkage areas in occupied habitat, subject to valid existing rights.

Objective<sup>30</sup> LINK O1

In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.

Standard<sup>44</sup> LINK S1

When highway<sup>18</sup> or forest highway<sup>12</sup> construction or reconstruction is proposed in linkage areas<sup>22</sup>, identify potential highway crossings.

Guideline<sup>15</sup> LINK G1

NFS lands should be retained in public ownership.

Guideline LINK G2

Livestock grazing in shrub-steppe habitats<sup>43</sup> should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages<sup>28</sup>, similar to conditions that would have occurred under historic disturbance regimes.

## REQUIRED MONITORING

Map the location and intensity of snow compacting activities and designated and groomed routes that occurred inside LAUs during the period of 1998 to 2000. The mapping is to be completed within one year of this decision, and changes in activities and routes are to be monitored every five years after the decision.

When project decisions are signed report the following:

1. Fuel treatments:
  - a. Acres of fuel treatment in lynx habitat by forest and LAU, and whether the treatment is within *or outside* the WUI as defined by HFRA.
  - b. Whether or not the fuel treatment met the vegetation standards or guidelines. If standard(s) are not met, report which standard(s) are not met, why they were not met, and how many acres were affected.
  - c. *Whether or not 2 adjacent LAUs exceed standard VEG S1 (30% in a stand initiation structural stage that is too short to provide winter snowshoe hare habitat), and what event(s) or action(s) caused the standard to be exceeded.*
2. *Application of exception in Standard VEG S5*
  - a. *For areas where any of the exemptions 1 through 6 listed in Standard VEG S5 were applied: Report the type of activity, the number of acres, and the location (by unit, and LAU) and whether or not Standard VEG S1 was within the allowance.*
3. *Application of exceptions in Standard VEG S6*
  - a. *For areas where any of the exemptions 1 through 3 listed in Standard VEG S6 were applied: Report the type of activity, the number of acres, and the location (by unit, and LAU) and whether or not Standard VEG S1 was within the allowance.*
4. *Application of guidelines*
  - a. *Document the rationale for deviations to guidelines. Summarize what guideline(s) was not followed and why.*

**Directions in italics were terms and conditions that were incorporated from the FWS Biological Opinion (USDI FWS 2007).**

## GLOSSARY

<sup>1</sup> *Area of consistent snow compaction* – An area of consistent snow compaction is an area of land or water that during winter is generally covered with snow and gets enough human use that individual tracks are indistinguishable. In such places, compacted snow is evident most of the time, except immediately after (within 48 hours) snowfall. These can be areas or linear routes, and are generally found in or near snowmobile or cross-country ski routes, in adjacent openings, parks and meadows, near ski huts or plowed roads, or in winter parking areas. Areas of consistent snow compaction will be determined based on the acreage or miles used during the period 1998 to 2000.

<sup>2</sup> *Broad scale assessment* – A broad scale assessment is a synthesis of current scientific knowledge, including a description of uncertainties and assumptions, to provide an understanding of past and present conditions and future trends, and a characterization of the ecological, social, and economic components of an area. (LCAS)

<sup>3</sup> *Carr* – Deciduous woodland or shrub land occurring on permanently wet, organic soil. (LCAS)

<sup>4</sup> *Course woody debris* – Any piece(s) of dead woody material, e.g., dead boles, limbs, and large root masses on the ground or in streams. (LCAS)

<sup>5</sup> *Daylight thinning* – Daylight thinning is a form of precommercial thinning that removes the trees and brush inside a given radius around a tree.

<sup>6</sup> *Denning habitat (lynx)* – Denning habitat is the environment lynx use when giving birth and rearing kittens until they are mobile. The most common component is large amounts of coarse woody debris to provide escape and thermal cover for kittens. Denning habitat must be within daily travel distance of winter snowshoe hare habitat – the typical maximum daily distance for females is about three to six miles. Denning habitat includes mature and old growth forests with plenty of coarse woody debris. It can also include young regenerating forests with piles of coarse woody debris, or areas where down trees are jack-strawed.

<sup>7</sup> *Designated over-the-snow routes* – Designated over-the-snow routes are routes managed under permit or agreement or by the agency, where use is encouraged, either by on-the-ground marking or by publication in brochures, recreation opportunity guides or maps (other than travel maps), or in electronic media produced or approved by the agency. The routes identified in outfitter and guide permits are designated by definition; groomed routes also are designated by definition. The determination of baseline snow compaction will be based on the miles of designated over-the-snow routes authorized, promoted or encouraged during the period 1998 to 2000.

<sup>8</sup> *Designated route* – A designated route is a road or trail that has been identified as open for specified travel use.

<sup>9</sup> *Developed recreation* – Developed recreation requires facilities that result in concentrated use. For example, skiing requires lifts, parking lots, buildings, and roads; campgrounds require roads, picnic tables, and toilet facilities.

<sup>10</sup> *Security habitat (lynx)* – Security habitat amounts to places in lynx habitat that provide secure winter bedding sites for lynx in highly disturbed landscapes like ski areas. Security habitat gives lynx the ability to retreat from human disturbance. Forest structures that make human access difficult generally discourage human activity in security habitats. Security habitats are most effective if big enough to provide visual and acoustic insulation and to let lynx easily move away from any intrusion. They must be close to winter snowshoe hare habitat. (LCAS)

<sup>11</sup> *Fire use* – Fire use is the combination of wildland fire use and using prescribed fire to meet resource objectives. (NIFC) Wildland fire use is the management of naturally ignited wildland fires to accomplish resource management objectives in areas that have a fire management plan. The use of the term wildland fire use replaces the term prescribed natural fire. (Wildland and Prescribed Fire Management Policy, August 1998)

<sup>12</sup> *Forest highway* – A forest highway is a forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (USC: Title 23, Section 101(a)), designated by an agreement with the FS, state transportation agency, and Federal Highway Administration.

<sup>13</sup> *Fuel treatment* – A fuel treatment is a type of vegetation management action that reduces the threat of ignition, fire intensity, or rate of spread, or is used to restore fire-adapted ecosystems.

<sup>14</sup> *Goal* – A goal is a broad description of what an agency is trying to achieve, found in a land management plan. (LCAS)

<sup>15</sup> *Guideline* – A guideline is a particular management action that should be used to meet an objective found in a land management plan. The rationale for deviations may be documented, but amending the plan is not required. (LCAS modified)

<sup>16</sup> *Habitat connectivity (lynx)* – Habitat connectivity consists of an adequate amount of vegetation cover arranged in a way that allows lynx to move around. Narrow forested mountain ridges or shrub-steppe plateaus may serve as a link between more extensive areas of lynx habitat; wooded riparian areas may provide travel cover across open valley floors. (LCAS)

<sup>17</sup> *HFRA (Healthy Forests Restoration Act)* - Public Law 108-148, passed in December 2003. The HFRA provides statutory processes for hazardous fuel reduction projects on certain types of at-risk National Forest System and Bureau of Land Management lands. It also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships. (Modified from Forest Service HFRA web site.)

<sup>18</sup> *Highway* – The word highway includes all roads that are part of the National Highway System. (23 CFR 470.107(b))

<sup>19</sup> *Horizontal cover* – Horizontal cover is the visual obscurity or cover provided by habitat structures that extend to the ground or snow surface primarily provided by tree stems

and tree boughs, but also includes herbaceous vegetation, snow, and landscape topography.

<sup>20</sup> *Isolated mountain range* – Isolated mountain ranges are small mountains cut off from other mountains and surrounded by flatlands. On the east side of the Rockies, they are used for analysis instead of sub-basins. Examples are the Little Belts in Montana and the Bighorns in Wyoming.

<sup>21</sup> *LAU (Lynx Analysis Unit)* – An LAU is an area of at least the size used by an individual lynx, from about 25 to 50 square miles (LCAS). An LAU is a unit for which the effects of a project would be analyzed; its boundaries should remain constant.

<sup>22</sup> *Linkage area* – A linkage area provides connectivity between blocks of lynx habitat. Linkage areas occur both within and between geographic areas, where basins, valleys, or agricultural lands separate blocks of lynx habitat, or where lynx habitat naturally narrows between blocks. (LCAS updated definition approved by the Steering Committee 10/23/01)

<sup>23</sup> *Lynx habitat* – Lynx habitat occurs in mesic coniferous forest that experience cold, snowy winters and provide a prey base of snowshoe hare. In the northern Rockies, lynx habitat generally occurs between 3,500 and 8,000 feet of elevation, and primarily consists of lodgepole pine, subalpine fir, and Engelmann spruce. It may consist of cedar-hemlock in extreme northern Idaho, northeastern Washington and northwestern Montana, or of Douglas-fir on moist sites at higher elevations in central Idaho. It may also consist of cool, moist Douglas-fir, grand fir, western larch and aspen when interspersed in subalpine forests. Dry forests do not provide lynx habitat. (LCAS)

<sup>24</sup> *Lynx habitat in an unsuitable condition* – Lynx habitat in an unsuitable condition consists of lynx habitat in the stand initiation structural stage where the trees are generally less than ten to 30 years old and have not grown tall enough to protrude above the snow during winter. Stand replacing fire or certain vegetation management projects can create unsuitable conditions. Vegetation management projects that can result in unsuitable habitat include clearcuts and seed tree harvest, and sometimes shelterwood cuts and commercial thinning depending on the resulting stand composition and structure. (LCAS)

<sup>25</sup> *Low-speed, low-traffic-volume road* – Low speed is less than 20 miles per hour; low volume is a seasonal average daily traffic load of less than 100 vehicles per day.

<sup>26</sup> *Maintain* – In the context of this decision, maintain means to provide enough lynx habitat to conserve lynx. It does not mean to keep the status quo.

<sup>27</sup> *Maintenance level* – Maintenance levels define the level of service provided by and maintenance required for a road. (FSH 7709.58, Sec 12.3) Maintenance level 4 is assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most level 4 roads have double lanes and an aggregate surface. Some may be single lane; some may be paved or have dust abated. Maintenance level 5 is assigned to roads that provide a high degree of user comfort and convenience.



Normally, level 5 roads are have double lanes and are paved, but some may be aggregate surfaced with the dust abated.

<sup>28</sup> *Mid-seral or later* – Mid-seral is the successional stage in a plant community that is the midpoint as it moves from bare ground to climax. For riparian areas, it means willows or other shrubs have become established. For shrub-steppe areas, it means shrubs associated with climax are present and increasing in density.

<sup>29</sup> *Multi-story mature or late successional forest* – This stage is similar to the *old multistory structural* stage (see below). However, trees are generally not as old, and decaying trees may be somewhat less abundant.

<sup>30</sup> *Objective* – An objective is a statement in a land management plan describing desired resource conditions and intended to promote achieving programmatic goals. (LCAS)

<sup>31</sup> *Old multistory structural stage* – Many age classes and vegetation layers mark the old forest, multistoried stage. It usually contains large old trees. Decaying fallen trees may be present that leave a discontinuous overstory canopy. On cold or moist sites without frequent fires or other disturbance, multi-layer stands with large trees in the uppermost layer develop. (Oliver and Larson, 1996)

<sup>32</sup> *Old growth* – Old growth forests generally contain trees that are large for their species and the site, and are sometimes decadent with broken tops. Old growth often contains a variety of tree sizes, large snags, and logs, and a developed and often patchy understory.

<sup>33</sup> *Permanent development* – A permanent development is any development that results in a loss of lynx habitat for at least 15 years. Ski trails, parking lots, new permanent roads, structures, campgrounds, and many special use developments would be considered permanent developments.

<sup>34</sup> *Prescribed fire* – A prescribed fire is any fire ignited as a management action to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements met, before ignition. The term prescribed fire replaces the term management ignited prescribed fire. (NWCG)

<sup>35</sup> *Precommercial thinning* – Precommercial thinning is mechanically removing trees to reduce stocking and concentrate growth on the remaining trees, and not resulting in immediate financial return. (Dictionary of Forestry)

<sup>36</sup> *Project* - All, or any part or number of the various activities analyzed in an Environmental Impact Statement, Environmental Analysis, or Decision Memo. For example, the vegetation management in some units or stands analyzed in an EIS could be for fuel reduction, and therefore those units or stands would fall within the term *fuel treatment project* even if the remainder of the activities in the EIS are being conducted for other purposes, and the remainder of those units or stands have other activities prescribed in them. All units in an analysis do not necessarily need to be for fuel reduction purposes for certain units to be considered a *fuel reduction project*.

<sup>37</sup> *Red squirrel habitat* – Red squirrel habitat consists of coniferous forests of seed and cone-producing age that usually contain snags and downed woody debris, generally associated with mature or older forests.

<sup>38</sup> *Regeneration harvest* – The cutting of trees and creating an entire new age class; an even-age harvest. The major methods are clearcutting, seed tree, shelterwood, and group selective cuts. (Helms, 1998)

<sup>39</sup> *Research* – Research consists of studies conducted to increase scientific knowledge or technology. For the purposes of Standards VEG S5 and VEG S6, research applies to studies financed from the forest research budget (FSM 4040) and administrative studies financed from the NF budget.

<sup>40</sup> *Restore, restoration* – To restore is to return or re-establish ecosystems or habitats to their original structure and species composition. (Dictionary of Forestry)

<sup>41</sup> *Riparian area* – An area with distinctive soil and vegetation between a stream or other body of water and the adjacent upland; includes wetlands and those portions of floodplains and valley bottoms that support riparian vegetation. (LCAS)

<sup>42</sup> *Salvage harvest* – Salvage harvest is a commercial timber sale of dead, damaged, or dying trees. It recovers economic value that would otherwise be lost. Collecting firewood for personal use is not considered salvage harvest.

<sup>43</sup> *Shrub steppe habitat* – Shrub steppe habitat consists of dry sites with shrubs and grasslands intermingled.

<sup>44</sup> *Standard* – A standard is a required action in a land management plan specifying how to achieve an objective or under what circumstances to refrain from taking action. A plan must be amended to deviate from a standard.

<sup>45</sup> *Stand initiation structural stage* – The stand initiation stage generally develops after a stand-replacing disturbance by fire or regeneration timber harvest. A new single-story layer of shrubs, tree seedlings, and saplings establish and develop, reoccupying the site. Trees that need full sun are likely to dominate these even-aged stands. (Oliver and Larson, 1996)

<sup>46</sup> *Stem exclusion structural stage (Closed canopy structural stage)* – In the stem exclusion stage, trees initially grow fast and quickly occupy all of the growing space, creating a closed canopy. Because the trees are tall, little light reaches the forest floor so understory plants (including smaller trees) are shaded and grow more slowly. Species that need full sunlight usually die; shrubs and herbs may become dormant. New trees are precluded by a lack of sunlight or moisture. (Oliver and Larson, 1996)

<sup>47</sup> *Timber management* – Timber management consists of growing, tending, commercially harvesting, and regenerating crops of trees.

<sup>48</sup> *Understory re-initiation structural stage* – In the understory re-initiation stage, a new age class of trees gets established after overstory trees begin to die, are removed, or no longer fully occupy their growing space after tall trees abrade each other in the wind. Understory seedlings then re-grow and the trees begin to stratify into vertical layers. A

low to moderately dense uneven-aged overstory develops, with some small shade-tolerant trees in the understory. (Oliver and Larson, 1996)

<sup>49</sup> *Vegetation management* – Vegetation management changes the composition and structure of vegetation to meet specific objectives, using such means as prescribed fire or timber harvest. For the purposes of this decision, the term does not include removing vegetation for permanent developments like mineral operations, ski runs, roads and the like, and does not apply to fire suppression or to wildland fire use.

<sup>50</sup> *Wildland urban interface (WUI)* – Use the definition of WUI found in the Healthy Forests Restoration Act. The full text can be found at HFRA § 101. Basically, the wildland urban interface is the area adjacent to an at-risk community that is identified in the community wildfire protection plan. If there is no community wildfire protection plan in place, the WUI is the area 0.5 mile from the boundary of an at-risk community; or within 1.5 miles of the boundary of an at-risk community if the terrain is steep, or there is a nearby road or ridgetop that could be incorporated into a fuel break, or the land is in condition class 3, or the area contains an emergency exit route needed for safe evacuations. (Condensed from HFRA. For full text see HFRA § 101.)

<sup>51</sup> *Winter snowshoe hare habitat* – Winter snowshoe hare habitat consists of places where young trees or shrubs grow densely – thousands of woody stems per acre – and tall enough to protrude above the snow during winter, so snowshoe hare can browse on the bark and small twigs (LCAS). Winter snowshoe hare habitat develops primarily in the stand initiation, understory reinitiation and old forest multistoried structural stages.

Page intentionally left blank.

# **Appendix I: Forest Plan Amendments—Incorporating Habitat Management Direction for the Northern Continental Divide Ecosystem Grizzly Bear Population Helena-Lewis and Clark, Kootenai, and Lolo National Forests**

Lead Agency:

USDA Forest Service

Responsible Officials:

William Avey, Forest Supervisor  
Helena-Lewis and Clark National Forest  
2880 Skyway Drive  
Helena, MT 59602  
406-449-5201

Christopher S. Savage, Forest Supervisor  
Kootenai National Forest  
31374 U.S. Highway 2  
Libby, MT 59923  
406-293-6211

Timothy Garcia, Forest Supervisor  
Lolo National Forest  
24 Fort Missoula Road  
Missoula, MT 59803  
406-329-3750

For information, contact:

Joe Krueger, Forest Plan Revision Planning Team Leader  
Flathead National Forest  
650 Wolfpack Way  
Kalispell, MT 59901  
406-758-5243

---

Page intentionally blank

---



## Table of Contents

<b>Amendment Management Direction .....</b>	<b>1</b>
<b>Helena National Forest Plan Amendment.....</b>	<b>3</b>
<i>Wildlife (WL)</i> .....	4
Desired conditions .....	4
Standards .....	4
Guidelines .....	4
<i>Access and Recreation (AR)</i> .....	5
Desired conditions .....	5
Standards .....	5
Guidelines .....	7
<i>Terrestrial Ecosystems Vegetation (VEG)</i> .....	8
Desired conditions .....	8
Guidelines .....	8
<i>Grazing (GRZ)</i> .....	9
Desired condition.....	9
Standards .....	9
Guidelines .....	10
<i>Special Forest Products (SFP)</i> .....	10
Desired condition.....	10
Standard.....	10
<i>Renewable/Non-Renewable Energy and Mineral Resources (MIN)</i> .....	10
Desired condition.....	10
Standards .....	10
Guidelines .....	12
<i>Helena National Forest—Zone 1</i> .....	13
Desired conditions .....	13
Standard.....	13
<b>Kootenai National Forest Plan Amendment.....</b>	<b>15</b>
<i>Wildlife (WL)</i> .....	16
Desired conditions .....	16
Standards .....	16
Guidelines .....	16
<i>Access and Recreation (AR)</i> .....	17
Desired conditions .....	17
Standards .....	17
Guidelines .....	19
<i>Terrestrial Ecosystems Vegetation (VEG)</i> .....	20
Desired conditions .....	20
Guidelines .....	20
<i>Grazing (GRZ)</i> .....	21
Desired condition.....	21
Standards .....	21
Guidelines .....	22

<i>Special Forest Products (SFP)</i> .....	22
Desired condition.....	22
Standard.....	22
<i>Renewable/Non-Renewable Energy and Mineral Resources (MIN)</i> .....	22
Desired condition.....	22
Standards .....	23
Guidelines .....	24
<i>Kootenai National Forest—Zone 1</i> .....	25
Desired conditions .....	25
Standards .....	26
<b>Lewis and Clark National Forest Plan Amendment.....</b>	<b>27</b>
<i>Wildlife (WL)</i> .....	28
Desired Conditions.....	28
Standards .....	28
Guidelines .....	28
<i>Access and Recreation (AR)</i> .....	29
Desired conditions .....	29
Standards .....	29
Guidelines .....	31
<i>Terrestrial Ecosystems Vegetation (VEG)</i> .....	32
Desired conditions .....	32
Guidelines .....	32
<i>Grazing (GRZ)</i> .....	33
Desired condition.....	33
Standards .....	33
Guidelines .....	34
<i>Special Forest Products (SFP)</i> .....	34
Desired condition.....	34
Standard.....	34
<i>Renewable/Non-Renewable Energy and Mineral Resources (MIN)</i> .....	34
Desired condition.....	34
Standards .....	34
Guidelines .....	36
<b>Lolo National Forest Plan Amendment .....</b>	<b>38</b>
<i>Wildlife (WL)</i> .....	39
Desired conditions .....	39
Standards .....	39
Guidelines .....	39
<i>Access and Recreation (AR)</i> .....	40
Desired conditions .....	40
Standards .....	40
Guidelines .....	42
<i>Terrestrial Ecosystems Vegetation (VEG)</i> .....	43
Desired conditions .....	43
Guidelines .....	43

<i>Grazing (GRZ)</i> .....	44
Desired condition.....	44
Standards .....	44
Guidelines .....	45
<i>Special Forest Products (SFP)</i> .....	45
Desired condition.....	45
Standard.....	45
<i>Renewable/Non-Renewable Energy and Mineral Resources (MIN)</i> .....	45
Desired condition.....	45
Standards .....	46
Guidelines .....	47
<i>Lolo National Forest—Zone 1</i> .....	48
Desired conditions .....	48
Standards .....	49
<b>Monitoring (MON)</b> .....	49
<b>How Changes in Route Density and Secure Core Would Be Implemented</b> .....	51
<i>Hypothetical Example</i> .....	51
<b>Glossary</b> .....	52

## List of Tables

<b>Table 1-1. Acres of NFS land and percent* of total acres of all lands in each grizzly bear management zone, for each of the forest plans in the NCDE</b> .....	1
<b>Table 1-2. Values in a bear management subunit for OMRD, TMRD, and secure core for project in years 11 through 14</b> .....	51
<b>Table 1-3. Using data from table 1-2 to show the 10-year running averages for OMRD, TMRD, and secure core before, during, and after project completion</b> .....	51

## List of Figures

<b>Figure 1-1. The Northern Continental Divide Ecosystem vicinity map, with inset showing NCDE and Greater Yellowstone Ecosystem grizzly bear distributions</b> .....	2
<b>Figure 1-2. Grizzly bear management zones on the Helena National Forest and NCDE grizzly bear distribution (MFWP 2015)</b> .....	3
<b>Figure 1-3. Grizzly bear management zones on the Kootenai National Forest</b> .....	15
<b>Figure 1-4. Grizzly bear management zones on the Lewis and Clark National Forest.</b> .....	27
<b>Figure 1-5. Grizzly bear management zones on the Lolo National Forest.</b> .....	38

## Abbreviations

CFR	Code of Federal Regulations
DC	desired condition (forest plan component)
DCA	demographic connectivity area
GBCS	Grizzly Bear Conservation Strategy
GDL	guideline (forest plan component)
NCDE	Northern Continental Divide Ecosystem
NFS	National Forest System
OMRD	open motorized route density
PCA	primary conservation area
STD	standard (forest plan component)
TMRD	total motorized route density
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

## Amendment Management Direction

The desired conditions, standards, and guidelines have specific alphanumeric identifiers. All identifiers for the management direction begin with “NCDE” because they are only applicable to the NCDE and are not applicable to other grizzly bear ecosystems. The identifiers are further differentiated as follows:

- area where direction applies (e.g., NCDE or NCDE-HNF Zone 1);
- type of forest plan component (i.e., DC = desired condition, STD = standard, GDL = guideline), or MON = monitoring item;
- resource (e.g., AR = access and recreation, GRZ = grazing, SFP = special forest products); and
- a unique number (i.e., numerical order starting with “01”).

As an example, direction from this amendment for a desired condition associated with access and recreation would be identified as NCDE-DC-AR-01.

For clarity, the plan components have been tailored to each forest plan to reflect whether the various zones and demographic connectivity areas occur on that unit (table 1-1). For example, only those plan components that are applicable to the recovery zone/primary conservation area, zone 1, and the Salish demographic connectivity area are included for the Kootenai National Forest plan since there is no zone 2 or zone 3 on the Kootenai National Forest. See figure 1-1 for the vicinity map of the NCDE national forests and management zones. The section on each Forest includes a Forest-specific map that shows the draft Conservation Strategy management zones.

**Table 1-1. Acres of NFS land and percent\* of total acres of all lands in each grizzly bear management zone, for each of the forest plans in the NCDE**

National Forest	Recovery zone/PCA acres (percent)	Zone 1 including DCA acres (percent)	Zone 2 acres (percent)	Zone 3 acres (percent)
Flathead	2,136,536 (37%)	231,548 (5%)	-	-
Helena	183,758 (3%)	149,207 (3%)	642,786 (14%)	5,792 (< 1%)
Kootenai	118,770 (2%)	283,302 (6%)	-	-
Lewis and Clark	777,963 (14%)	6 (< 1%)	2 acres (< 1%)	972,612 (8%)
Lolo	268,390 (5%)	386,274 (8%)	38 acres (< 1 %)	-

Note. DCA = demographic connectivity area, PCA = primary conservation area.

\* Percent is Forest's acres of that zone by the total acres for all lands within that zone.

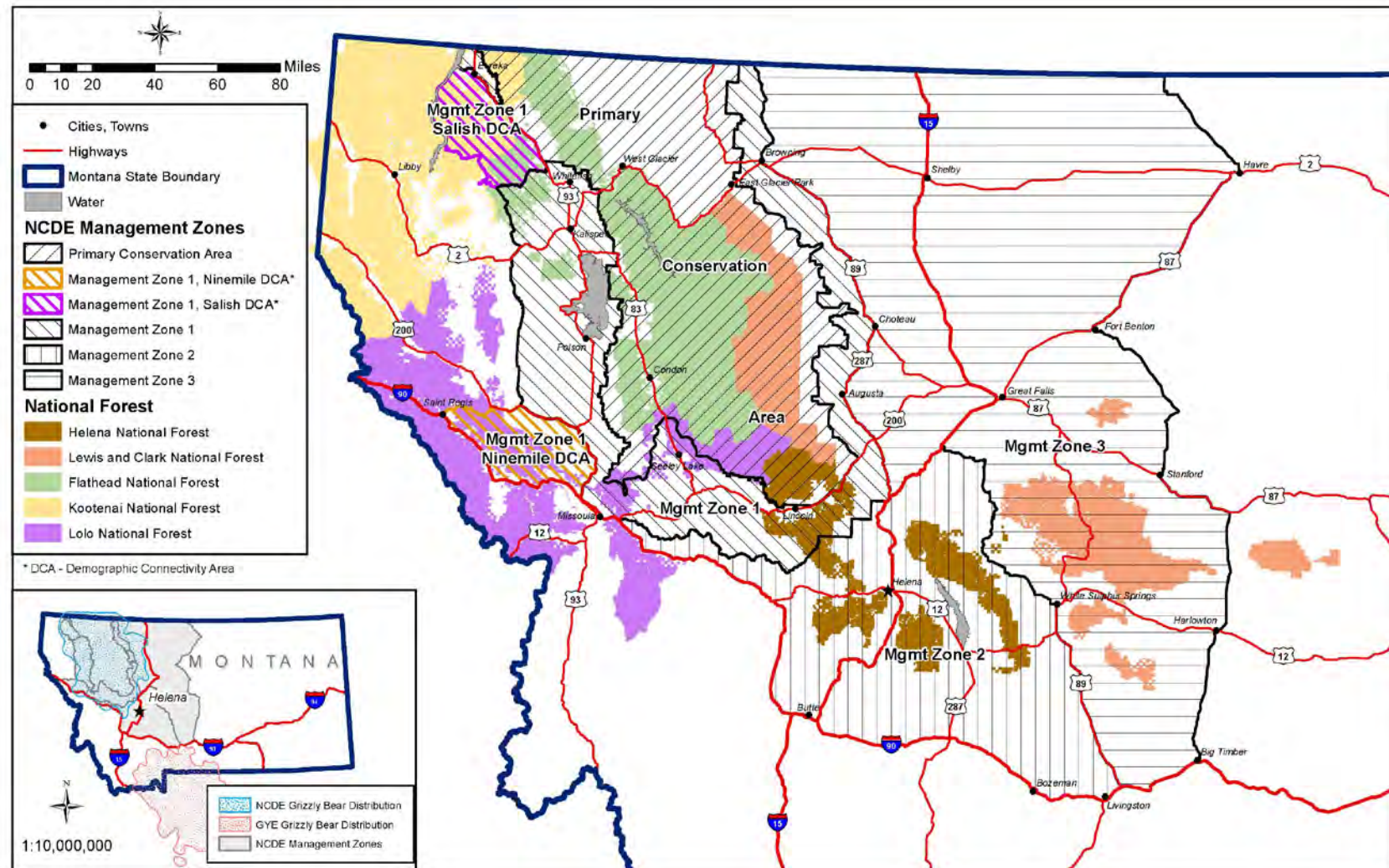


Figure 1-1. The Northern Continental Divide Ecosystem vicinity map, with inset showing NCDE and Greater Yellowstone Ecosystem grizzly bear distributions.



# Helena National Forest Plan Amendment

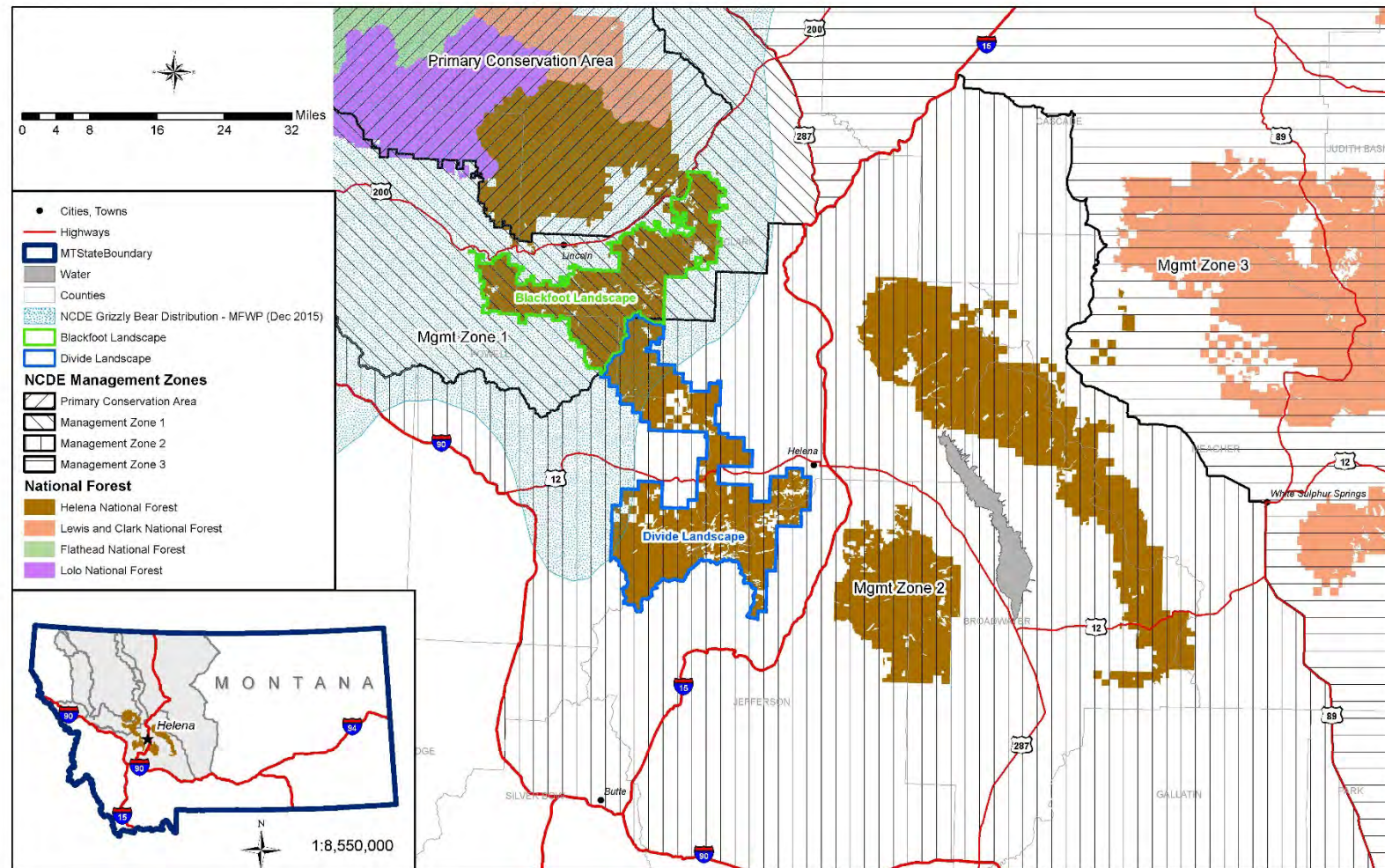


Figure 1-2. Grizzly bear management zones on the Helena National Forest and NCDE grizzly bear distribution (MFWP 2015)

## Wildlife (WL)

### Desired conditions

**NCDE-DC-WL-01.** Within the NCDE primary conservation area, zone 1, and zone 2, bear attractants on NFS lands are stored in a manner that reduces the risk of grizzly bear-human conflicts in the NCDE.

**NCDE-DC-WL-02.** Within the NCDE primary conservation area and zone 1, grizzly bear habitat on NFS lands contributes to sustaining the recovery of the grizzly bear population in the NCDE and contributes to connectivity with neighboring grizzly bear recovery zones.

**NCDE-DC-WL-03.** The risk of grizzly bear-human conflicts is reduced by information, education, and design features or criteria for management activities.

### Standards

**NCDE-STD-WL-01.** Grizzly bear habitat on NFS lands in the NCDE shall be delineated and managed as primary conservation area, zone 1, zone 2, or zone 3 (see figure 1-2 or subsequent USFWS updates if applicable).

**NCDE-STD-WL-02.** Within the NCDE primary conservation area, zone 1, and zone 2, food/wildlife attractant storage special order(s) shall apply to NFS lands.

**NCDE-STD-WL-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be calculated for roads used for projects (as defined by “project (in grizzly bear habitat in the NCDE)”) during the non-denning season (see glossary). Calculations will include estimated changes for each year of the anticipated duration of the project and shall be incorporated into the 10-year running average required by standard NCDE-STD-AR-03.

### Guidelines

**NCDE-GDL-WL-01.** Within the NCDE primary conservation area, zone 1, and zone 2, contractors, permittees, lessees, operators, and their employees should be informed of food/wildlife attractant storage special order(s) and procedures for safely working and recreating in grizzly bear country, prior to turnout of livestock or beginning work and annually thereafter, in order to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-02.** Within the NCDE primary conservation area, zone 1, and zone 2, if a contractor, permittee, lessee, or operator or their employees elect to camp on NFS lands other than in a developed recreation site, the site should be evaluated and written authorization (i.e., a campsite agreement that includes the food/wildlife attractant storage special order) should be provided before the campsite is established. The purpose is to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-03.** Within the NCDE primary conservation area and zone 1, clover should not be used in seed mixes on NFS lands. Native seed mixes or those that are less palatable to grizzly bears should be used so that seeded areas do not become an attractant.

## Access and Recreation (AR)

### Desired conditions

**NCDE-DC-AR-01.** Within the NCDE primary conservation area, motorized access provides for multiple uses (such as harvesting of timber and non-timber forest products; hunting, fishing, and recreation opportunities) on NFS lands while providing open motorized route density, total motorized route density, and secure core levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-AR-02.** Within the NCDE primary conservation area, the number, capacity, and improvements of developed recreation sites provide for user comfort and safety while minimizing the risk of grizzly bear-human conflicts on NFS lands.

**NCDE-DC-AR-03.** Within each bear management unit in the primary conservation area, increases in the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use during the non-denning season are at levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

### Standards

**NCDE-STD-AR-01.** Within the NCDE primary conservation area, motorized use of roads with public restrictions shall be permitted for administrative use (see glossary) as long as doing so does not exceed either six trips (three round trips) per week *or* one 30-day unlimited use period during the non-denning season (see glossary). The exception to this standard is:

- emergency situations as defined by 36 Code of Federal Regulations (CFR) 218.21.

Note: Administrative use is not included in baseline calculations and is not included in calculations of net increases or decreases. If the level of administrative use exceeds this standard, the use is counted as a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary).

**NCDE-STD-AR-02.** In each bear management subunit within the NCDE primary conservation area, there shall be no net decrease to the baseline (see glossary) for secure core and no net increase to the baseline for open motorized route density or total motorized route density on NFS lands during the non-denning season (see glossary). The following conditions are not considered a net increase/decrease from the baseline:

- administrative use (see glossary);
- temporary use of a motorized route for a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary) that meets the conditions stipulated in NCDE-STD-AR-03;
- mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines listed under NCDE-MIN;
- updated or improved data on a motorized route without an actual change on the ground;
- changes in technology or projections that result in changed open motorized route density, total motorized route density, or secure core values without actual change on the ground (e.g., a switch from the North American Datum of 1927 to the North American Datum of 1983 geodetic reference system);

- a road closure location is moved a short distance to a better location (e.g., to the nearest intersection or turnout) to allow a turn-around providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- the agency exchanges, acquires, buys, or sells lands with motorized routes;
- a change in a motorized route necessary to comply with Federal laws;
- a change in a motorized route necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage or concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts);
- a change made by an adjacent landowner that decreases the percentage of secure core or increases open motorized route density or total motorized route density values on an adjacent national forest;
- use of a motorized route for emergency situations as defined by 36 CFR 218.21; and
- temporary roads (see glossary).

**NCDE-STD-AR-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in open motorized route density, total motorized route density, and secure core shall be allowed for projects (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary). The 10-year running average for open motorized route density, total motorized route density, and secure core shall not exceed the following limits during the non-denning season (see glossary):

- 5 percent temporary increase in open motorized route density in each bear management subunit (i.e., open motorized route density baseline plus 5 percent);
- 3 percent temporary increase in total motorized route density in each bear management subunit (i.e., total motorized route density baseline plus 3 percent); and
- 2 percent temporary decrease in secure core in each bear management subunit (i.e., secure core baseline minus 2 percent).

Exceptions to this standard include

- temporary changes for emergency situations as defined by 36 CFR 218.21 and
- temporary changes for actions where valid existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases).

Refer to page 1-55 for examples of how to calculate and apply the 10-year running average and temporary increase/decrease.

**NCDE-STD-AR-04.** Within the NCDE primary conservation area, a restricted road may be temporarily opened for public motorized use to allow authorized uses (such as firewood gathering), provided the period of use does not exceed 30 consecutive days during one non-denning season and occurs outside of spring and fall bear hunting seasons. However, temporary public use of a restricted road shall not be authorized in secure core (see glossary).

**NCDE-STD-AR-05.** Within the NCDE primary conservation area, the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use by the public during the non-denning season (e.g., campgrounds, cabin rentals, huts, guest lodges, recreation residences) shall be limited to one increase above the baseline (see glossary) in the number or capacity per decade per bear management unit. The following conditions are not considered an increase from the baseline:

- the agency obtains better information or updated information in its database(s);

- the agency acquires land that contains developed recreation sites;
- the agency increases the number or capacity of a developed recreation site in order to comply with Federal laws;
- the agency maintains or modifies an existing overnight developed or dispersed recreation site in such a way that does not increase the number or capacity of the site (e.g., installing a pit toilet to avoid damage to water resources or installing a bear-resistant food storage structure to reduce grizzly bear-human conflicts);
- the agency modifies an existing developed recreation site to enhance human safety (e.g., enlarging a road pullout to allow trailers to safely turn around);
- the agency operates a developed recreation site to allow overnight use only during the denning season (see glossary); and
- the agency makes a corresponding reduction in the number or capacity of overnight developed recreation sites in the same bear management unit through any of the following means: (1) equal reduction in capacity at another site; (2) closure of a developed site(s); or (3) consolidation and/or elimination of dispersed camping, when and where it can be enforced effectively and it is reasonably assured that new dispersed sites will not develop nearby. If these measures are used to offset an increase in number or capacity, they must be in place before the initiation of the increase. If the agency reduces the number or capacity of developed sites below baseline levels, these reductions may be used at a future date to mitigate equivalent impacts of an increase, expansion, or change of use in developed sites within that bear management unit.

Note: This standard does not apply to dispersed recreation sites or to developed recreation sites managed for day use only (e.g., outfitter camps, roadside trail crossings, or interpretive pullouts; trailheads, picnic areas, or boat launches that are closed at night; ski areas that do not have overnight lodging).

**NCDE-STD-AR-06.** Within the NCDE primary conservation area, new or reauthorized recreation permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-AR-07.** Within the NCDE primary conservation area, new or reauthorized permits for ski areas on NFS lands that operate during the non-denning season shall include requirements to limit the risk of grizzly bear-human conflicts (e.g., to store garbage in a bear-resistant manner).

**NCDE-STD-AR-08.** Within modeled grizzly bear denning habitat in the NCDE primary conservation area, there shall be no net increase in the percentage of area or miles of routes designated for motorized over-snow vehicle use on NFS lands during the den emergence time period (see glossary).

## Guidelines

**NCDE-GDL-AR-01.** In each bear management subunit within the NCDE primary conservation area, each project (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) should be designed so that on-the-ground implementation does not exceed 5 years to reduce the potential for grizzly bear disturbance or displacement. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);

- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the five-year time limitation is required (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-02.** Within the NCDE primary conservation area, secure core, open motorized route density, and total motorized route density should be restored to pre-project levels (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) within 1 year after completion of the project to reduce the potential duration of grizzly bear disturbance due to project-related activities. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);
- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the 1-year time limitation is made (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-03.** Within the NCDE primary conservation area, if the number or capacity of day-use or overnight developed recreation sites is increased, the project should include one or more measures to reduce the risk of grizzly-bear human conflicts in that bear management unit. These measures can include but are not limited to additional public information and education; providing backcountry food-hanging poles or bear-resistant food or garbage storage devices; including design criteria that would limit capacity increases to those needed for public health and safety; and increasing law enforcement and patrols.

## Terrestrial Ecosystems Vegetation (VEG)

### Desired conditions

**NCDE-DC-VEG-01.** Within the NCDE primary conservation area, the amount, type, and distribution of vegetation provide for the ecological, social, and economic sustainability of NFS lands while providing habitat components that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-VEG-02.** Within the NCDE primary conservation area, there is a mosaic of successional stages to provide for grizzly bear habitat needs over the long term.

### Guidelines

**NCDE-GDL-VEG-01.** Within the NCDE primary conservation area, measures to reduce the risk of disturbance to the grizzly bear population should be incorporated into vegetation and fuels project design criteria, which vary on a site-specific basis (e.g., some activities should be restricted in spring habitat during the spring; areas with low levels of human activity should be provided adjacent to areas with high levels of disturbance). Note: Management activities such as pre-commercial thinning, burning, weed spraying, and implementation of road best management practices may need to be completed during the spring in order to meet resource objectives (especially if needed to prevent resource damage), in which



case other measures should be used to reduce the risk of disturbance (e.g., limiting the duration of the activity or limiting the use of closed roads).

**NCDE-GDL-VEG-02.** Within the NCDE primary conservation area, vegetation management activities should be designed to avoid detrimental effects on the grizzly bear population and to include one or more measures to protect, maintain, increase, and/or improve grizzly habitat quantity or quality (e.g., promoting growth of berry-producing shrubs, forbs, or grasses known to be bear foods) in areas where it would not increase the risk of grizzly bear-human conflicts.

**NCDE-GDL-VEG-03.** Within the NCDE primary conservation area, measures to retain cover (where present) along a portion of grass/forb/shrub openings, riparian wildlife habitat, or wetlands should be incorporated in project design criteria (this varies on a site-specific basis).

**NCDE-GDL-VEG-04.** Within the NCDE primary conservation area, vegetation management projects (including timber sales and other non-commercial vegetation management contracts) should include a provision for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-GDL-VEG-05.** To reduce the risk of grizzly-bear human conflicts within the NCDE primary conservation area, vegetation management activities designed to enhance grizzly habitat (e.g., to increase huckleberry production) should not occur in or next to campgrounds, administrative facilities, or other developed recreation sites that operate during the non-denning season.

## Grazing (GRZ)

### Desired condition

**NCDE-DC-GRZ-01.** Within the NCDE primary conservation area, the number, capacity of, and improvements on cattle and sheep grazing allotments support ecologically sustainable grazing, and temporary grazing permits are used effectively for management of noxious weeds while minimizing the risk of grizzly bear-human conflicts on NFS lands.

### Standards

**NCDE-STD-GRZ-01.** Within the NCDE primary conservation area and zone 1, new or reauthorized livestock grazing permits and annual operating plans shall incorporate requirements to reduce the risk of grizzly bear-human conflicts (e.g., a food/wildlife attractant storage special order). New or reauthorized permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-STD-GRZ-02.** Within the NCDE primary conservation area, a sheep grazing permit in non-use status shall not be allowed to increase allowable animal unit months beyond what was previously permitted prior to being in non-use when it is returned to use.

**NCDE-STD-GRZ-03.** Within the NCDE primary conservation area and zone 1, permits for livestock grazing shall include a provision that requires the reporting of livestock carcasses within 24 hours of discovery, which shall be followed by proper disposal of the carcass. Boneyards shall not be established on NFS lands.

**NCDE-STD-GRZ-04.** Within the NCDE primary conservation area and zone 1, there shall be no increase in the number of active sheep allotments or in permitted sheep animal unit months above the baseline (see glossary) on NFS lands. Allowable animal unit months shall not be increased for inactive allotments.

Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently unallotted lands or an increase in animal unit months.

**NCDE-STD-GRZ-05.** Within the NCDE primary conservation area, there shall be no net increase in the number of active cattle grazing allotments above the baseline (see glossary) on NFS lands. Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently unallotted lands.

**NCDE-STD-GRZ-06.** Within the NCDE primary conservation area and zone 1, temporary permits for grazing by small livestock for purposes such as controlling invasive exotic weeds, reducing fire risk, or trailing of small livestock across NFS lands shall not result in an increase in bear-small livestock conflicts.

## **Guidelines**

**NCDE-GDL-GRZ-01.** On NFS lands within the NCDE primary conservation area, the number of open or active sheep grazing allotments should be reduced if an opportunity exists with a willing permittee, to reduce the risk of conflicts with grizzly bears.

**NCDE-GDL-GRZ-02.** Within the NCDE primary conservation area, an allotment management plan and plan of operation should specify any needed measures to protect key grizzly bear food production areas (e.g., wet meadows, stream bottoms, aspen groves, and other riparian wildlife habitats) from conflicting and competing use by livestock (this varies on a site-specific basis).

## **Special Forest Products (SFP)**

### **Desired condition**

**NCDE-DC-SFP-01.** National forest system lands provide a variety of public services and special forest products (such as mushrooms, huckleberries, firewood) while minimizing the risk of grizzly bear-human conflicts on NFS lands in the NCDE.

### **Standard**

**NCDE-STD-SFP-01.** Special-use permits for apiaries (beehives) located on NFS lands shall incorporate measures including electric fencing to reduce the risk of grizzly bear-human conflicts, as specified in the food/wildlife attractant storage special order.

## **Renewable/Non-Renewable Energy and Mineral Resources (MIN)**

### **Desired condition**

**NCDE-DC-MIN-01.** Mineral materials are available based upon public interest, in-service needs, material availability, and valid existing rights, where consistent with desired conditions for other resources.

### **Standards**

**NCDE-STD-MIN-01.** Within the NCDE primary conservation area and zone 1, mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) occurring on NFS lands, where feasible shall avoid, minimize, and/or mitigate environmental impacts to grizzly bears or their habitat, subject to valid existing rights. Stipulations or mitigation measures already included in existing leases, permits, or plans of

operation on NFS lands shall not be changed, nor will additional stipulations or mitigation measures be added, without the lease, permit, or plan of operation holder's agreement.

**NCDE-STD-MIN-02.** Within the NCDE primary conservation area and zone 1, new or reauthorized permits, leases, and/or plans of operation shall include a provision for modification or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-MIN-03.** Within the NCDE primary conservation area and zone 1, new plans of operation, permits, and/or leases for mineral activities shall include measures to reasonably mitigate potential impacts of mineral development for the following:

- land surface and vegetation disturbance;
- water table alterations that affect bear foods on the surface; and
- construction, operation, and reclamation of mine-related facilities such as impoundments, rights of way, motorized routes, pipelines, canals, transmission lines, or other structures.

**NCDE-STD-MIN-04.** Within the NCDE primary conservation area and zone 1, in addition to measures included in the food/wildlife attractant special order(s), new plans of operation, permits, and/or leases for mineral activities shall include the following measures regarding grizzly bear attractants:

- bear-resistant food storage and garbage containers shall be used at development sites and at any campgrounds or dispersed sites where exploration or production-related human occupancy is anticipated;
- garbage shall be removed in a timely manner;
- road kills shall be removed daily during active operating periods to a designated location determined in close coordination with Montana Fish, Wildlife and Parks;
- feeding of wildlife shall not be allowed; and
- locations of work camps shall be approved in advance of operations. Food storage requirements shall be strictly adhered to in any work camps.

**NCDE-STD-MIN-05.** Within the NCDE primary conservation area and zone 1, if minerals activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases for mineral activities shall include the following mitigation measures, stipulations, or surface use criteria regarding grizzly bear habitat:

- ground-disturbing activities in identified grizzly bear spring habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided between April 1 and June 30. If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears;
- seismic activity in identified grizzly bear denning habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided during the denning season (see glossary). If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts to the grizzly bear;
- cumulative impacts of multiple concurrent seismic and/or drilling operations shall be limited by timing restrictions. If timing restrictions are not practicable, reasonable and appropriate measures shall be taken to mitigate negative impacts to the grizzly bear;
- reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration, or mitigation of functioning aquatic systems and riparian habitat conservation areas shall identify how

reclamation will occur, plant species to be used in reclamation, a timeframe of when reclamation will be completed, and monitoring criteria; and

- reclamation and revegetation of motorized routes, drilling pads, and other areas disturbed by mineral activities shall be completed as soon as practicable by the operator.

**NCDE-STD-MIN-06.** Within the NCDE primary conservation area and zone 1, if mineral activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases shall include the following mitigation measures regarding motorized access:

- public motorized use that is not associated with minerals activities shall be prohibited on motorized routes constructed for exploration and/or development;
- a traffic management plan shall be developed as part of the proposed activity to identify when and how motorized routes will be used, maintained, and monitored (if required) and how motorized route standards and guidelines will be implemented after activities have ended;
- helicopter use associated with seismic activity, exploration, drilling, or development must follow an approved plan or permit; and
- speed limits shall be adopted on motorized routes if needed to prevent or reduce collisions with grizzly bears.

**NCDE-STD-MIN-07.** Within the NCDE primary conservation area and zone 1, minerals contractors and lessees shall require employees to attend training related to safely living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter.

**NCDE-STD-MIN-08.** Within the NCDE primary conservation area, new leases for leasable minerals shall include a no surface occupancy stipulation (see glossary).

## Guidelines

**NCDE-GDL-MIN-01.** Within the NCDE primary conservation area and zone 1, in addition to forestwide guidelines, the following guidelines apply to new leasable minerals activities, including leases, surface use plans for proposed wells or operations, and permits to conduct seismic exploration or drilling. To reduce potential grizzly bear disturbance or displacement, helicopter use plans should:

- avoid establishing recurring helicopter use (see glossary), especially in spring habitats or other known important grizzly bear habitats or use areas; and
- avoid establishing landing zones, especially in spring habitats or other known important grizzly bear habitats or use areas. If a landing zone is deemed necessary for safe implementation of the seismic or surface use plan or permit to drill, the landing zone should be constructed only in an area that has had site-specific analysis and approval.

**NCDE-GDL-MIN-02.** Within the NCDE primary conservation area and zone 1, leasable energy activities should use the best available noise-reduction technology on equipment and motorized vehicles to reduce potential disturbance or displacement of grizzly bears, whenever possible.

**NCDE-GDL-MIN-03.** Within the NCDE primary conservation area and zone 1, along motorized routes, seismic corridors, and pipelines constructed for leasable energy activities, wildlife cover should be maintained at regular intervals where present (this varies on a site-specific basis) in order to provide habitat connectivity for grizzly bears.

**NCDE-GDL-MIN-04.** Within the NCDE primary conservation area and zone 1, for locatable and non-energy leasable minerals activities with the potential to adversely affect the grizzly bear or its habitat (this varies on a site-specific basis), the following tiered measures should be considered to mitigate impacts to grizzly bear habitat. Beginning at step 1, any subsequent steps would be implemented only if the prior steps are not possible or achievable.

- Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities compared to the original habitat (such as the same native vegetation).
- Step 2: If step 1 is not attainable, operators should either acquire a perpetual conservation easement (or easements) or purchase comparable or better replacement grizzly bear habitat within the primary conservation area. Acquisition of habitat within connectivity corridors could also be considered for mitigation, when appropriate. Habitat acquired for mitigation may require a purchase rate of > 1:1 on an acreage basis, depending on the quality of habitat degraded and habitat available for acquisition.
- Step 3: If steps 1 and 2 are not achievable, the next option is to offset negative effects to bears and grizzly bear habitat with other appropriate types of actions.

**NCDE-GDL-MIN-05.** Within the NCDE primary conservation area and zone 1, carrying bear deterrent spray should be recommended to mineral permittees, lessees and operators to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-MIN-06.** Within the NCDE primary conservation area and zone 1, available resources at existing gravel pits should be used before constructing new pits to reduce the risk of grizzly bear disturbance or displacement associated with blasting of rock or crushing of gravel.

## Helena National Forest—Zone 1

### Desired conditions

**NCDE-HNF Zone 1-DC-01.** Within zone 1 on the Helena-Lewis and Clark National Forest (see figure 1-2), roads and trails provide for public and administrative access to NFS lands. Grizzly bear habitat in zone 1 contributes to sustaining the recovery of the grizzly bear population in the NCDE and providing the opportunity for movement of male bears to provide genetic connectivity with the Greater Yellowstone Ecosystem.

**NCDE-HNF Zone 1&2-DC-02.** On the Helena-Lewis and Clark National Forest, within zone 1 and the portion of zone 2 west of Interstate 15, NFS lands adjacent to highways are consolidated and other efforts to reduce barriers to genetic connectivity of grizzly bear populations are supported.

### Standard

**NCDE-HNF Zone 1-STD-01.** Within zone 1 on the Helena-Lewis and Clark National Forest (see figure 1-2), there shall be no net increase above the baseline in density of motorized routes (roads and trails) open to public motorized use during the non-denning season on NFS lands. Open motorized route density is calculated by dividing the total miles of open motorized routes on NFS lands in zone 1 by the total square miles of NFS land area in that same area (see figure 1-2). This standard does not apply to the following:

- motorized use by agency personnel or others authorized by the appropriate agency personnel;

- temporarily opening a road for a short period of time to allow for public firewood gathering and other authorized use;
- updated or improved road data without an actual change on the ground;
- changes in technology or projections that result in changed calculations without actual change on the ground (e.g., a switch in geodetic systems from the North American Datum of 1927 to the North American Datum of 1983);
- a road closure location is moved a short distance to a better location (e.g., to the nearest intersection or turnout ) to allow a turn-around providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- the agency exchanges, acquires, buys, or sells lands with motorized routes;
- a change in an open road necessary to comply with Federal laws;
- motorized use for mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines;
- a change in a motorized route necessary to address grizzly bear-human conflicts, resource damage, or human safety concerns;
- use of motorized routes in emergency situations as defined by 36 CFR 218.21; and
- temporary roads (see glossary).

# Kootenai National Forest Plan Amendment

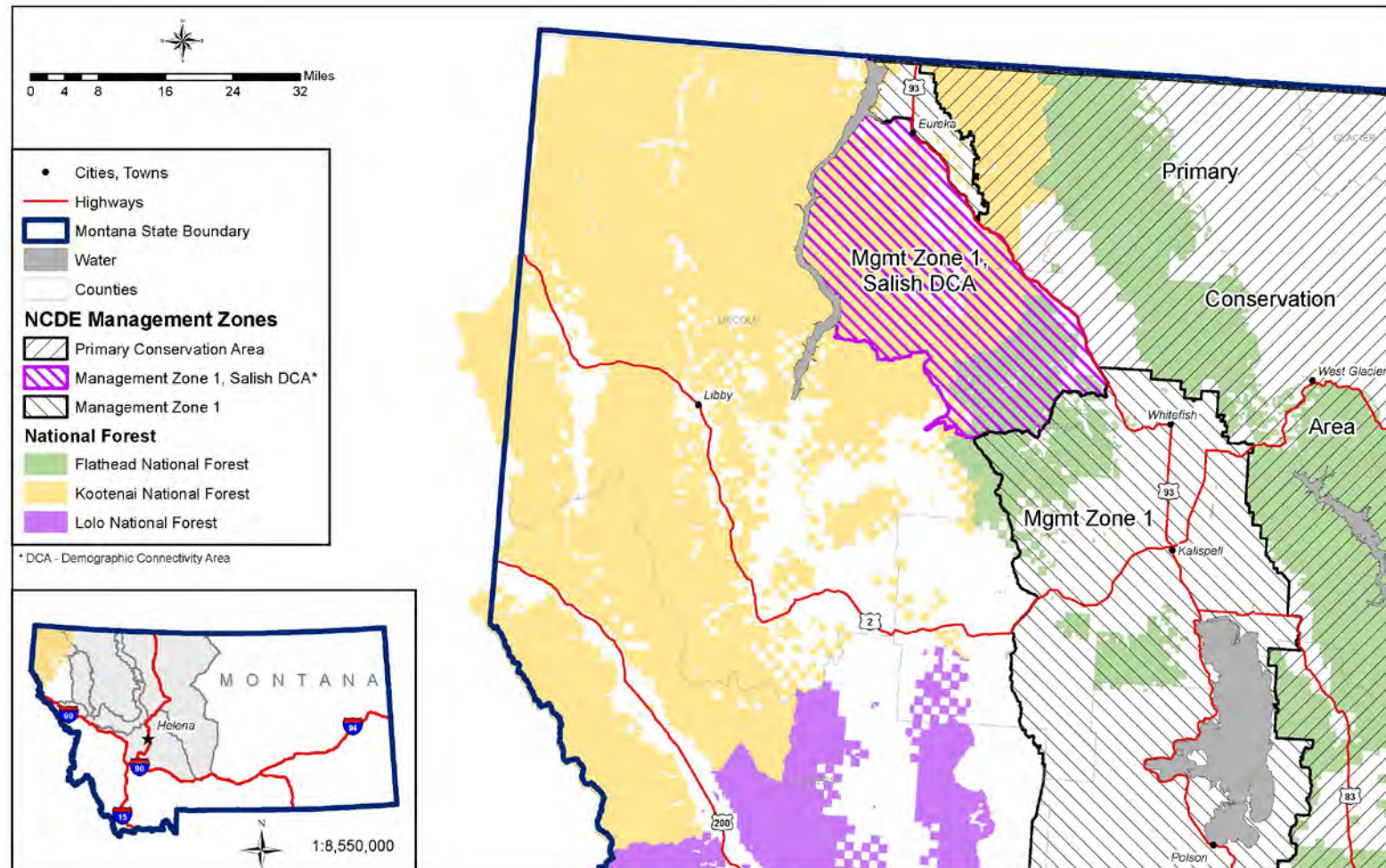


Figure 1-3. Grizzly bear management zones on the Kootenai National Forest



## Wildlife (WL)

### Desired conditions

**NCDE-DC-WL-01.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), bear attractants on NFS lands are stored in a manner that reduces the risk of grizzly bear-human conflicts in the NCDE.

**NCDE-DC-WL-02.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), grizzly bear habitat on NFS lands contributes to sustaining the recovery of the grizzly bear population in the NCDE and contributes to connectivity with neighboring grizzly bear recovery zones.

**NCDE-DC-WL-03.** The risk of grizzly bear-human conflicts is reduced by information, education, and design features or criteria for management activities.

### Standards

**NCDE-STD-WL-01.** Grizzly bear habitat on NFS lands in the NCDE shall be delineated and managed as primary conservation area and zone 1 (including the Salish demographic connectivity area) (see Figure 1-3 or subsequent USFWS updates if applicable).

**NCDE-STD-WL-02.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), food/wildlife attractant storage special order(s) shall apply to NFS lands.

**NCDE-STD-WL-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be calculated for roads used for projects (as defined by “project (in grizzly bear habitat in the NCDE)”) during the non-denning season (see glossary). Calculations will include estimated changes for each year of the anticipated duration of the project and will be incorporated into the 10-year running average required by standard NCDE-STD-AR-03.

### Guidelines

**NCDE-GDL-WL-01.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), contractors, permittees, lessees, operators, and their employees should be informed of food/wildlife attractant storage special order(s) and procedures for safely working and recreating in grizzly bear country, prior to turnout of livestock or beginning work and annually thereafter, in order to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-02.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), if a contractor, permittee, lessee, operator or their employees elect to camp on NFS lands other than in a developed recreation site, the site should be evaluated and written authorization (i.e., a campsite agreement that includes the food/wildlife attractant storage special order) should be provided before the campsite is established. The purpose is to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-03.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), clover should not be used in seed mixes on NFS lands. Native seed mixes or those that are less palatable to grizzly bears should be used so that seeded areas do not become an attractant.

## Access and Recreation (AR)

### Desired conditions

**NCDE-DC-AR-01.** Within the NCDE primary conservation area, motorized access provides for multiple uses (such as harvesting of timber and non-timber forest products; hunting, fishing, and recreation opportunities) on NFS lands while providing open motorized route density, total motorized route density, and secure core levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-AR-02.** Within the NCDE primary conservation area, the number, capacity, and improvements of developed recreation sites provide for user comfort and safety while minimizing the risk of grizzly bear-human conflicts on NFS lands.

**NCDE-DC-AR-03.** Within each bear management unit in the primary conservation area, increases in the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use during the non-denning season are at levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

### Standards

**NCDE-STD-AR-01.** Within the NCDE primary conservation area, motorized use of roads with public restrictions shall be permitted for administrative use (see glossary) as long as doing so does not exceed either six trips (three round trips) per week *or* one 30-day unlimited use period during the non-denning season (see glossary). The exception to this standard is:

- emergency situations as defined by 36 Code of Federal Regulations (CFR) 218.21.

Note: Administrative use is not included in baseline calculations and is not included in calculations of net increases or decreases. If the level of administrative use exceeds this standard, the use is counted as a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary).

**NCDE-STD-AR-02.** In each bear management subunit within the NCDE primary conservation area, there shall be no net decrease to the baseline (see glossary) for secure core and no net increase to the baseline for open motorized route density open motorized route density or total motorized route density on NFS lands during the non-denning season (see glossary). The following conditions are not considered a net increase/decrease from the baseline:

- administrative use (see glossary);
- temporary use of a motorized route for a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary) that meets the conditions stipulated in NCDE-STD-AR-03;
- mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines listed under NCDE-MIN;
- updated or improved data on a motorized route without an actual change on the ground;
- changes in technology or projections that result in changed open motorized route density, total motorized route density, or secure core values without actual change on the ground (e.g., a switch from the North American Datum of 1927 to the North American Datum of 1983 geodetic reference system);

- a road closure location is moved a short distance to a better location (e.g., to the nearest intersection or turnout) to allow a turn-around providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- the agency exchanges, acquires, buys, or sells lands with motorized routes;
- a change in a motorized route necessary to comply with Federal laws;
- a change in a motorized route necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage/concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts);
- a change made by an adjacent landowner that decreases the percentage of secure core or increases open motorized route density or total motorized route density values on an adjacent national forest;
- use of a motorized route for emergency situations as defined by 36 CFR 218.21; and
- temporary roads (see glossary).

**NCDE-STD-AR-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in open motorized route density, total motorized route density, and secure core shall be allowed for projects (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary). The 10-year running average for open motorized route density, total motorized route density, and secure core shall not exceed the following limits during the non-denning season (see glossary):

- 5 percent temporary increase in open motorized route density in each bear management subunit (i.e., open motorized route density baseline plus 5 percent);
- 3 percent temporary increase in total motorized route density in each bear management subunit (i.e., total motorized route density baseline plus 3 percent); and
- 2 percent temporary decrease in secure core in each bear management subunit (i.e., secure core baseline minus 2 percent).

Exceptions to this standard include

- temporary changes for emergency situations as defined by 36 CFR 218.21; and
- temporary changes for actions where valid existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases).

Refer to page 1-55 for examples of how to calculate and apply the 10-year running average and temporary increase/decrease.

**NCDE-STD-AR-04.** Within the NCDE primary conservation area, a restricted road may be temporarily opened for public motorized use to allow authorized uses (such as firewood gathering), provided the period of use does not exceed 30 consecutive days during one non-denning season and occurs outside of spring and fall bear hunting seasons. However, temporary public use of a restricted road shall not be authorized in secure core (see glossary).

**NCDE-STD-AR-05.** Within the NCDE primary conservation area, the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use by the public during the non-denning season (e.g., campgrounds, cabin rentals, huts, guest lodges, recreation residences) shall be limited to one increase above the baseline (see glossary) in the number or capacity per decade per bear management unit. The following conditions are not considered an increase from the baseline:

- the agency obtains better information or updated information in its database(s);

- the agency acquires land that contains developed recreation sites;
- the agency increases the number or capacity of a developed recreation site in order to comply with Federal laws;
- the agency maintains or modifies an existing overnight developed or dispersed recreation site in such a way that does not increase the number or capacity of the site (e.g., installing a pit toilet to avoid damage to water resources or installing a bear-resistant food storage structure to reduce grizzly bear-human conflicts);
- the agency modifies an existing developed recreation site to enhance human safety (e.g., enlarging a road pullout to allow trailers to safely turn around);
- the agency operates a developed recreation site to allow overnight use only during the denning season (see glossary); and
- the agency makes a corresponding reduction in the number or capacity of overnight developed recreation sites in the same bear management unit through any of the following means: (1) equal reduction in capacity at another site; (2) closure of a developed site(s); or (3) consolidation and/or elimination of dispersed camping, when and where it can be enforced effectively and it is reasonably assured that new dispersed sites will not develop nearby. If these measures are used to offset an increase in number or capacity, they must be in place before the initiation of the increase. If the agency reduces the number or capacity of developed sites below baseline levels, these reductions may be used at a future date to mitigate equivalent impacts of an increase, expansion, or change of use in developed sites within that bear management unit.

Note: This standard does not apply to dispersed recreation sites or to developed recreation sites managed for day use only (e.g., outfitter camps, roadside trail crossings, or interpretive pullouts; trailheads, picnic areas, or boat launches that are closed at night; ski areas that do not have overnight lodging).

**NCDE-STD-AR-06.** Within the NCDE primary conservation area, new or reauthorized recreation permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-AR-07.** Within the NCDE primary conservation area, new or reauthorized permits for ski areas on NFS lands that operate during the non-denning season shall include requirements to limit the risk of grizzly bear-human conflicts (e.g., to store garbage in a bear-resistant manner).

**NCDE-STD-AR-08.** Within modeled grizzly bear denning habitat in the NCDE primary conservation area, there shall be no net increase in the percentage of area or miles of routes designated for motorized over-snow vehicle use on NFS lands during the den emergence time period (see glossary).

## Guidelines

**NCDE-GDL-AR-01.** In each bear management subunit within the NCDE primary conservation area, each project (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) should be designed so that on-the-ground implementation does not exceed 5 years to reduce the potential duration of grizzly bear disturbance or displacement due to project-related activities. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);

- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the five-year time limitation is required (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-02.** Within the NCDE primary conservation area, secure core, open motorized route density, and total motorized route density should be restored to pre-project levels (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) within 1 year after completion of the project to reduce the potential duration of grizzly bear disturbance due to project-related activities. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);
- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the 1-year time limitation is made (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-03.** Within the NCDE primary conservation area, if the number or capacity of day-use or overnight developed recreation sites is increased, the project should include one or more measures to reduce the risk of grizzly-bear human conflicts in that bear management unit. These measures can include but are not limited to: additional public information and education; providing backcountry food-hanging poles or bear-resistant food or garbage storage devices; including design criteria that would limit capacity increases to those needed for public health and safety; and increasing law enforcement and patrols.

## Terrestrial Ecosystems Vegetation (VEG)

### Desired conditions

**NCDE-DC-VEG-01.** Within the NCDE primary conservation area, the amount, type, and distribution of vegetation provide for the ecological, social, and economic sustainability of NFS lands while providing habitat components that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-VEG-02.** Within the NCDE primary conservation area, there is a mosaic of successional stages to provide for grizzly bear habitat needs over the long term.

### Guidelines

**NCDE-GDL-VEG-01.** Within the NCDE primary conservation area, measures to reduce the risk of disturbance to the grizzly bear population should be incorporated into vegetation and fuels project design criteria, which vary on a site-specific basis (e.g., some activities should be restricted in spring habitat during the spring; areas with low levels of human activity should be provided adjacent to areas with high levels of disturbance). Note: Management activities such as pre-commercial thinning, burning, weed spraying, and implementation of road best management practices may need to be completed during the spring in order to meet resource objectives (especially if needed to prevent resource damage), in which

case other measures should be used to reduce the risk of disturbance (e.g., limiting the duration of the activity or limiting the use of closed roads).

**NCDE-GDL-VEG-02.** Within the NCDE primary conservation area, vegetation management activities should be designed to avoid detrimental effects on the grizzly bear population and to include one or more measures to protect, maintain, increase, and/or improve grizzly habitat quantity or quality (e.g., promoting growth of berry-producing shrubs, forbs, or grasses known to be bear foods) in areas where it would not increase the risk of grizzly bear-human conflicts.

**NCDE-GDL-VEG-03.** Within the NCDE primary conservation area, measures to retain cover (where present) along a portion of grass/forb/shrub openings, riparian wildlife habitat, or wetlands should be incorporated in project design criteria (this varies on a site-specific basis).

**NCDE-GDL-VEG-04.** Within the NCDE primary conservation area, vegetation management projects (including timber sales and other non-commercial vegetation management contracts) should include a provision for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-GDL-VEG-05.** To reduce the risk of grizzly-bear human conflicts within the NCDE primary conservation area, vegetation management activities designed to enhance grizzly habitat (e.g., to increase huckleberry production) should not occur in or next to campgrounds, administrative facilities, or other developed recreation sites that operate during the non-denning season.

## Grazing (GRZ)

### Desired condition

**NCDE-DC-GRZ-01.** Within the NCDE primary conservation area, the number, capacity of, and improvements on cattle and sheep grazing allotments support ecologically sustainable grazing, and temporary grazing permits are used effectively for management of noxious weeds while minimizing the risk of grizzly bear-human conflicts on NFS lands.

### Standards

**NCDE-STD-GRZ-01.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), new or reauthorized livestock grazing permits and annual operating plans shall incorporate requirements to reduce the risk of grizzly bear-human conflicts (e.g., a food/wildlife attractant storage special order). New or reauthorized permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-STD-GRZ-02.** Within the NCDE primary conservation area, a sheep grazing permit in non-use status shall not be allowed to increase allowable animal unit months beyond what was previously permitted prior to being in non-use when it is returned to use. Note: The Kootenai National Forest does not have any sheep allotments.

**NCDE-STD-GRZ-03.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), permits for livestock grazing shall include a provision that requires the reporting of livestock carcasses within 24 hours of discovery, which shall be followed by proper disposal of the carcass. Boneyards shall not be established on NFS lands.

**NCDE-STD-GRZ-04.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), there shall be no net increase in the number of active sheep allotments or in permitted sheep animal unit months above the baseline (see glossary) on NFS lands. Allowable animal unit months shall not be increased for inactive allotments. Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently unallotted lands or an increase in animal unit months.

**NCDE-STD-GRZ-05.** Within the NCDE primary conservation area, there shall be no net increase in the number of active cattle grazing allotments above the baseline (see glossary) on NFS lands. Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently unallotted lands.

**NCDE-STD-GRZ-06.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), temporary permits for grazing by small livestock for purposes such as controlling invasive exotic weeds, reducing fire risk, or trailing of small livestock across NFS lands shall not result in an increase in bear-small livestock conflicts.

## **Guidelines**

**NCDE-GDL-GRZ-01.** On NFS lands within the NCDE primary conservation area, the number of open or active sheep grazing allotments should be reduced if an opportunity exists with a willing permittee, to reduce the risk of conflicts with grizzly bears.

**NCDE-GDL-GRZ-02.** Within the NCDE primary conservation area, an allotment management plan and plan of operation should specify any needed measures to protect key grizzly bear food production areas (e.g., wet meadows, stream bottoms, aspen groves, other riparian wildlife habitats) from conflicting and competing use by livestock (this varies on a site-specific basis).

## **Special Forest Products (SFP)**

### **Desired condition**

**NCDE-DC-SFP-01.** National Forest System lands provide a variety of public services and special forest products (such as mushrooms, huckleberries, firewood) while minimizing the risk of grizzly bear-human conflicts on NFS lands in the NCDE.

### **Standard**

**NCDE-STD-SFP-01.** Special-use permits for apiaries (beehives) located on NFS lands shall incorporate measures including electric fencing to reduce the risk of grizzly bear-human conflicts, as specified in the food/wildlife attractant storage special order.

## **Renewable/Non-Renewable Energy and Mineral Resources (MIN)**

### **Desired condition**

**NCDE-DC-MIN-01.** Mineral materials are available based upon public interest, in-service needs, material availability, and valid existing rights, where consistent with desired conditions for other resources.



## Standards

**NCDE-STD-MIN-01.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) occurring on NFS lands, where feasible shall avoid, minimize, and/or mitigate environmental impacts to grizzly bears or their habitat, subject to valid existing rights. Stipulations or mitigation measures already included in existing leases, permits, or plans of operation on NFS lands shall not be changed, nor will additional stipulations or mitigation measures be added, without the lease, permit, or plan of operation holder's agreement.

**NCDE-STD-MIN-02.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), new or reauthorized permits, leases, and/or plans of operation shall include a provision for modification or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-MIN-03.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), new plans of operation, permits, and/or leases for mineral activities shall include measures to reasonably mitigate potential impacts of mineral development for the following:

- land surface and vegetation disturbance;
- water table alterations that affect bear foods on the surface; and
- construction, operation, and reclamation of mine-related facilities such as impoundments, rights of way, motorized routes, pipelines, canals, transmission lines, or other structures.

**NCDE-STD-MIN-04.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), in addition to measures included in the food/wildlife attractant special order(s), new plans of operation, permits, and/or leases for mineral activities shall include the following measures regarding grizzly bear attractants:

- bear-resistant food storage and garbage containers shall be used at development sites and at any campgrounds or dispersed sites where exploration or production-related human occupancy is anticipated;
- garbage shall be removed in a timely manner;
- road kills shall be removed daily during active operating periods to a designated location determined in close coordination with Montana Fish, Wildlife and Parks;
- feeding of wildlife shall not be allowed; and
- locations of work camps shall be approved in advance of operations. Food storage requirements shall be strictly adhered to in any work camps.

**NCDE-STD-MIN-05.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), if minerals activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases for mineral activities shall include the following mitigation measures, stipulations, or surface use criteria regarding grizzly bear habitat:

- ground-disturbing activities in identified grizzly bear spring habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided between April 1 and June 30. If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears;

- seismic activity in identified grizzly bear denning habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided during the denning season (see glossary). If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts to the grizzly bear;
- cumulative impacts of multiple concurrent seismic and/or drilling operations shall be limited by timing restrictions. If timing restrictions are not practicable, reasonable and appropriate measures shall be taken to mitigate negative impacts to the grizzly bear;
- reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration, or mitigation of functioning aquatic systems and riparian habitat conservation areas shall identify how reclamation will occur, plant species to be used in reclamation, a timeframe of when reclamation will be completed, and monitoring criteria; and
- reclamation and revegetation of motorized routes, drilling pads, and other areas disturbed by mineral activities shall be completed as soon as practicable by the operator.

**NCDE-STD-MIN-06.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), if mineral activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases shall include the following mitigation measures regarding motorized access:

- public motorized use that is not associated with minerals activities shall be prohibited on motorized routes constructed for exploration and/or development;
- a traffic management plan shall be developed as part of the proposed activity to identify when and how motorized routes will be used, maintained, and monitored (if required) and how motorized route standards and guidelines will be implemented after activities have ended;
- helicopter use associated with seismic activity, exploration, drilling, or development must follow an approved plan or permit; and
- speed limits shall be adopted on motorized routes if needed to prevent or reduce collisions with grizzly bears.

**NCDE-STD-MIN-07.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), minerals contractors and lessees shall require employees to attend training related to safely living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter.

**NCDE-STD-MIN-08.** Within the NCDE primary conservation area, new leases for leasable minerals shall include a no surface occupancy stipulation (see glossary).

## Guidelines

**NCDE-GDL-MIN-01.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), in addition to forestwide guidelines, the following guidelines apply to new leasable minerals activities, including leases, surface use plans for proposed wells or operations, and permits to conduct seismic exploration or drilling. To reduce potential grizzly bear disturbance or displacement, helicopter use plans should:

- avoid establishing recurring helicopter use (see glossary), especially in spring habitats or other known important grizzly bear habitats or use areas and
- avoid establishing landing zones, especially in spring habitats or other known important grizzly bear habitats or use areas. If a landing zone is deemed necessary for safe implementation of the

seismic or surface use plan or permit to drill, the landing zone should be constructed only in an area that has had site-specific analysis and approval.

**NCDE-GDL-MIN-02.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), leasable energy activities should use the best available noise-reduction technology on equipment and motorized vehicles to reduce potential disturbance or displacement of grizzly bears, whenever possible.

**NCDE-GDL-MIN-03.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), along motorized routes, seismic corridors, and pipelines constructed for leasable energy activities, wildlife cover should be maintained at regular intervals where present (this varies on a site-specific basis) in order to provide habitat connectivity for grizzly bears.

**NCDE-GDL-MIN-04.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), for locatable and non-energy leasable minerals activities with the potential to adversely affect the grizzly bear or its habitat (this varies on a site-specific basis), the following tiered measures should be considered to mitigate impacts to grizzly bear habitat. Beginning at step 1, any subsequent steps would be implemented only if the prior steps are not possible or achievable.

- Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities compared to the original habitat (such as the same native vegetation).
- Step 2: If step 1 is not attainable, operators should either acquire a perpetual conservation easement (or easements) or purchase comparable or better replacement grizzly bear habitat within the primary conservation area. Acquisition of habitat within connectivity corridors could also be considered for mitigation, when appropriate. Habitat acquired for mitigation may require a purchase rate of > 1:1 on an acreage basis, depending on the quality of habitat degraded and habitat available for acquisition.
- Step 3: If steps 1 and 2 are not achievable, the next option is to offset negative effects to bears and grizzly bear habitat with other appropriate types of actions.

**NCDE-GDL-MIN-05.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), carrying bear deterrent spray should be recommended to mineral permittees, lessees and operators to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-MIN-06.** Within the NCDE primary conservation area and zone 1 (including the Salish demographic connectivity area), available resources at existing gravel pits should be used before constructing new pits to reduce the risk of grizzly bear disturbance or displacement associated with blasting of rock or crushing of gravel.

## Kootenai National Forest—Zone 1

### Desired conditions

**NCDE-KNF Zone 1-DC-01.** Within the Kootenai National Forest portion of NCDE zone 1 (including the Salish demographic connectivity area) (see figure 1-3), roads provide for public and administrative access to NFS lands while contributing to sustaining the grizzly bear population in the NCDE. The demographic connectivity area provides habitat that can be used by female grizzly bears and allows for bear movement between grizzly bear ecosystems.

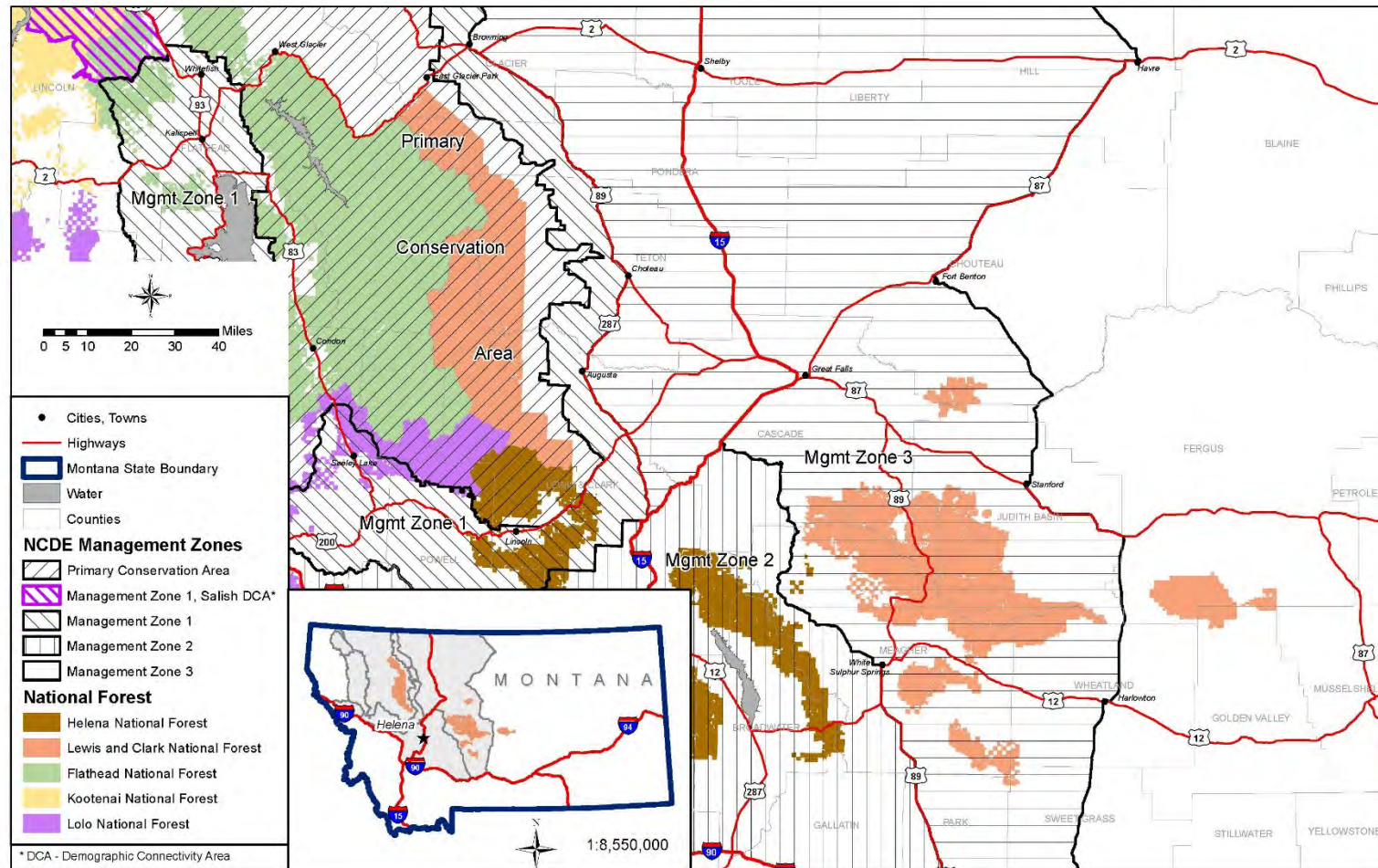
**NCDE-KNF Zone 1-DC-02.** In areas between the primary conservation area and the Salish demographic connectivity area, NFS lands are consolidated and conservation easements with willing landowners are supported in a manner that provides habitat connectivity and facilitates movement of wildlife.

## **Standards**

**NCDE- KNF Zone 1-STD-01.** Within zone 1 (including the Salish demographic connectivity area) (see figure 1-3) on the Kootenai National Forest, there shall be no increases in permanent linear miles of open roads, total roads, or motorized trails within the bears outside recovery zone polygons, with listed exceptions (Kootenai forest plan, appendix B). A temporary increase in open and total miles of road is allowed under specified conditions (Kootenai forest plan, appendix B, p. 150).

**NCDE-KNF Zone 1-STD-02.** Within zone 1 (including the Salish demographic connectivity area) on the Kootenai National Forest (see figure 1-3), NFS lands that lie outside the area covered by the Tobacco bears outside recovery zone polygons (Kootenai forest plan, appendix B, pp. 150-151) shall be managed according to the Kootenai forest plan direction.

# Lewis and Clark National Forest Plan Amendment



**Figure 1-4. Grizzly bear management zones on the Lewis and Clark National Forest.**

## Wildlife (WL)

### Desired Conditions

**NCDE-DC-WL-01.** Within the NCDE primary conservation area, zone 1, and zone 2, bear attractants on NFS lands are stored in a manner that reduces the risk of grizzly bear-human conflicts in the NCDE.

**NCDE-DC-WL-02.** Within the NCDE primary conservation area and zone 1, grizzly bear habitat on NFS lands contributes to sustaining the recovery of the grizzly bear population in the NCDE and contributes to connectivity with neighboring grizzly bear recovery zones.

**NCDE-DC-WL-03.** The risk of grizzly bear-human conflicts is reduced by information, education, and design features or criteria for management activities.

### Standards

**NCDE-STD-WL-01.** Grizzly bear habitat on NFS lands in the NCDE shall be delineated and managed as primary conservation area, zone 1, zone 2, or zone 3 (see figure 1-4 or subsequent USFWS updates if applicable).

**NCDE-STD-WL-02.** Within the NCDE primary conservation area, zone 1, and zone 2, food/wildlife attractant storage special order(s) shall apply to NFS lands.

**NCDE-STD-WL-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be calculated for roads used for projects (as defined by “project (in grizzly bear habitat in the NCDE)”) during the non-denning season (see glossary). Calculations will include estimated changes for each year of the anticipated duration of the project and will be incorporated into the 10-year running average required by standard NCDE-STD-AR-03.

### Guidelines

**NCDE-GDL-WL-01.** Within the NCDE primary conservation area, zone 1, and zone 2, contractors, permittees, lessees, operators, and their employees should be informed of food/wildlife attractant storage special order(s) and procedures for safely working and recreating in grizzly bear country, prior to turnout of livestock or beginning work and annually thereafter, in order to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-02.** Within the NCDE primary conservation area, zone 1, and zone 2, if a contractor, permittee, lessee, operator or their employees elect to camp on NFS lands other than in a developed recreation site, the site should be evaluated and written authorization (i.e., a campsite agreement that includes the food/wildlife attractant storage special order) should be provided before the campsite is established. The purpose is to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-03.** Within the NCDE primary conservation area and zone 1, clover should not be used in seed mixes on NFS lands. Native seed mixes or those that are less palatable to grizzly bears should be used so that seeded areas do not become an attractant.

## Access and Recreation (AR)

### Desired conditions

**NCDE-DC-AR-01.** Within the NCDE primary conservation area, motorized access provides for multiple uses (such as harvesting of timber and non-timber forest products; hunting, fishing, and recreation opportunities) on NFS lands while providing open motorized route density, total motorized route density, and secure core levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-AR-02.** Within the NCDE primary conservation area, the number, capacity, and improvements of developed recreation sites provide for user comfort and safety while minimizing the risk of grizzly bear-human conflicts on NFS lands.

**NCDE-DC-AR-03.** Within each bear management unit in the primary conservation area, increases in the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use during the non-denning season are at levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

### Standards

**NCDE-STD-AR-01.** Within the NCDE primary conservation area, motorized use of roads with public restrictions shall be permitted for administrative use (see glossary) as long as doing so does not exceed either six trips (three round trips) per week *or* one 30-day unlimited use period during the non-denning season (see glossary). The exception to this standard is:

- emergency situations as defined by 36 Code of Federal Regulations (CFR) 218.21.

Note: Administrative use is not included in baseline calculations and is not included in calculations of net increases or decreases. If the level of administrative use exceeds this standard, the use is counted as a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary).

**NCDE-STD-AR-02.** In each bear management subunit within the NCDE primary conservation area, there shall be no net decrease to the baseline (see glossary) for secure core and no net increase to the baseline for open motorized route density or total motorized route density on NFS lands during the non-denning season (see glossary). The following conditions are not considered a net increase/decrease from the baseline:

- administrative use (see glossary);
- temporary use of a motorized route for a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary) that meets the conditions stipulated in NCDE-STD-AR-03;
- mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines listed under NCDE-MIN;
- updated or improved data on a motorized route without an actual change on the ground;
- changes in technology or projections that result in changed open motorized route density, total motorized route density, or secure core values without actual change on the ground (e.g., a switch from the North American Datum of 1927 to the North American Datum of 1983 geodetic reference system);



- a road closure location is moved a short distance to a better location (e.g., to the nearest intersection or turnout) to allow a turn-around providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- the agency exchanges, acquires, buys, or sells lands with motorized routes;
- a change in a motorized route necessary to comply with Federal laws;
- a change in a motorized route necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage/concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts);
- a change made by an adjacent landowner that decreases the percentage of secure core or increases open motorized route density or total motorized route density values on an adjacent national forest;
- use of a motorized route for emergency situations as defined by 36 CFR 218.21; and
- temporary roads (see glossary).

**NCDE-STD-AR-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in open motorized route density, total motorized route density, and secure core shall be allowed for projects (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary). The 10-year running average for open motorized route density, total motorized route density, and secure core shall not exceed the following limits during the non-denning season (see glossary):

- 5 percent temporary increase in open motorized route density in each bear management subunit (i.e., open motorized route density baseline plus 5 percent);
- 3 percent temporary increase in total motorized route density in each bear management subunit (i.e., total motorized route density baseline plus 3 percent); and
- 2 percent temporary decrease in secure core in each bear management subunit (i.e., secure core baseline minus 2 percent).

Exceptions to this standard include

- temporary changes for emergency situations as defined by 36 CFR 218.21 and
- temporary changes for actions where valid existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases).

Refer to page 1-57 for examples of how to calculate and apply the 10-year running average and temporary increase/decrease.

**NCDE-STD-AR-04.** Within the NCDE primary conservation area, a restricted road may be temporarily opened for public motorized use to allow authorized uses (such as firewood gathering), provided the period of use does not exceed 30 consecutive days during one non-denning season and occurs outside of spring and fall bear hunting seasons. However, temporary public use of a restricted road shall not be authorized in secure core (see glossary).

**NCDE-STD-AR-05.** Within the NCDE primary conservation area, the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use by the public during the non-denning season (e.g., campgrounds, cabin rentals, huts, guest lodges, recreation residences) shall be limited to one increase above the baseline (see glossary) in the number or capacity per decade per bear management unit. The following conditions are not considered an increase from the baseline:

- the agency obtains better information or updated information in its database(s);

- the agency acquires land that contains developed recreation sites;
- the agency increases the number or capacity of a developed recreation site in order to comply with Federal laws;
- the agency maintains or modifies an existing overnight developed or dispersed recreation site in such a way that does not increase the number or capacity of the site (e.g., installing a pit toilet to avoid damage to water resources or installing a bear-resistant food storage structure to reduce grizzly bear-human conflicts);
- the agency modifies an existing developed recreation site to enhance human safety (e.g., enlarging a road pullout to allow trailers to safely turn around);
- the agency operates a developed recreation site to allow overnight use only during the denning season (see glossary); and
- the agency makes a corresponding reduction in the number or capacity of overnight developed recreation sites in the same bear management unit through any of the following means: (1) equal reduction in capacity at another site; (2) closure of a developed site(s); or (3) consolidation and/or elimination of dispersed camping, when and where it can be enforced effectively and it is reasonably assured that new dispersed sites will not develop nearby. If these measures are used to offset an increase in number or capacity, they must be in place before the initiation of the increase. If the agency reduces the number or capacity of developed sites below baseline levels, these reductions may be used at a future date to mitigate equivalent impacts of an increase, expansion, or change of use in developed sites within that bear management unit.

Note: This standard does not apply to dispersed recreation sites or to developed recreation sites managed for day use only (e.g., outfitter camps, roadside trail crossings, or interpretive pullouts; trailheads, picnic areas, or boat launches that are closed at night; ski areas that do not have overnight lodging).

**NCDE-STD-AR-06.** Within the NCDE primary conservation area, new or reauthorized recreation permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-AR-07.** Within the NCDE primary conservation area, new or reauthorized permits for ski areas on NFS lands that operate during the non-denning season shall include requirements to limit the risk of grizzly bear-human conflicts (e.g., to store garbage in a bear-resistant manner).

**NCDE-STD-AR-08.** Within modeled grizzly bear denning habitat in the NCDE primary conservation area, there shall be no net increase in the percentage of area or miles of routes designated for motorized over-snow vehicle use on NFS lands during the den emergence time period (see glossary).

## Guidelines

**NCDE-GDL-AR-01.** In each bear management subunit within the NCDE primary conservation area, each project (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) should be designed so that on-the-ground implementation does not exceed 5 years to reduce the potential duration of grizzly bear disturbance or displacement due to project-related activities. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);

- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the five-year time limitation is required (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-02.** Within the NCDE primary conservation area, secure core, open motorized route density, and total motorized route density should be restored to pre-project levels (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) within 1 year after completion of the project to reduce the potential duration of grizzly bear disturbance due to project-related activities. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);
- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the 1-year time limitation is made (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-03.** Within the NCDE primary conservation area, if the number or capacity of day-use or overnight developed recreation sites is increased, the project should include one or more measures to reduce the risk of grizzly-bear human conflicts in that bear management unit. These measures can include but are not limited to: offering additional public information and education; providing backcountry food-hanging poles or bear-resistant food or garbage storage devices; including design criteria that would limit capacity increases to those needed for public health and safety; and increasing law enforcement and patrols. Measures to reduce the risk of grizzly bear-human conflicts shall be selected during a separate site-specific analysis.

## Terrestrial Ecosystems Vegetation (VEG)

### Desired conditions

**NCDE-DC-VEG-01.** Within the NCDE primary conservation area, the amount, type, and distribution of vegetation provide for the ecological, social, and economic sustainability of NFS lands while providing habitat components that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-VEG-02.** Within the NCDE primary conservation area, there is a mosaic of successional stages to provide for grizzly bear habitat needs over the long term.

### Guidelines

**NCDE-GDL-VEG-01.** Within the NCDE primary conservation area, measures to reduce the risk of disturbance to the grizzly bear population should be incorporated into vegetation and fuels project design criteria, which vary on a site-specific basis (e.g., some activities should be restricted in spring habitat during the spring; areas with low levels of human activity should be provided adjacent to areas with high levels of disturbance). Note: Management activities such as pre-commercial thinning, burning, weed spraying, and implementation of road best management practices may need to be completed during the

spring in order to meet resource objectives (especially if needed to prevent resource damage), in which case other measures should be used to reduce the risk of disturbance (e.g., limiting the duration of the activity or limiting the use of closed roads).

**NCDE-GDL-VEG-02.** Within the NCDE primary conservation area, vegetation management activities should be designed to avoid detrimental effects on the grizzly bear population and to include one or more measures to protect, maintain, increase, and/or improve grizzly habitat quantity or quality (e.g., promoting growth of berry-producing shrubs, forbs, or grasses known to be bear foods) in areas where it would not increase the risk of grizzly bear-human conflicts.

**NCDE-GDL-VEG-03.** Within the NCDE primary conservation area, measures to retain cover (where present) along a portion of grass/forb/shrub openings, riparian wildlife habitat, or wetlands should be incorporated in project design criteria (this varies on a site-specific basis).

**NCDE-GDL-VEG-04.** Within the NCDE primary conservation area, vegetation management projects (including timber sales and other non-commercial vegetation management contracts) should include a provision for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-GDL-VEG-05.** To reduce the risk of grizzly-bear human conflicts within the NCDE primary conservation area, vegetation management activities designed to enhance grizzly habitat (e.g., to increase huckleberry production) should not occur in or next to campgrounds, administrative facilities, or other developed recreation sites that operate during the non-denning season.

## Grazing (GRZ)

### Desired condition

**NCDE-DC-GRZ-01.** Within the NCDE primary conservation area, the number, capacity of, and improvements on cattle and sheep grazing allotments support ecologically sustainable grazing, and temporary grazing permits are used effectively for management of noxious weeds while minimizing the risk of grizzly bear-human conflicts on NFS lands.

### Standards

**NCDE-STD-GRZ-01.** Within the NCDE primary conservation area and zone 1, new or reauthorized livestock grazing permits and annual operating plans shall incorporate requirements to reduce the risk of grizzly bear-human conflicts (e.g., a food/wildlife attractant storage special order). New or reauthorized permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-STD-GRZ-02.** Within the NCDE primary conservation area, a sheep grazing permit in non-use status shall not be allowed to increase allowable animal unit months beyond what was previously permitted prior to being in non-use when it is returned to use. Note: The Lewis and Clark National Forest does not have any sheep allotments.

**NCDE-STD-GRZ-03.** Within the NCDE primary conservation area and zone 1, permits for livestock grazing shall include a provision that requires the reporting of livestock carcasses within 24 hours of discovery, which shall be followed by proper disposal of the carcass. Boneyards shall not be established on NFS lands.

**NCDE-STD-GRZ-04.** Within the NCDE primary conservation area and zone 1, there shall be no net increase in the number of active sheep allotments or in permitted sheep animal unit months above the baseline (see glossary) on NFS lands. Allowable animal unit months shall not be increased for inactive allotments. Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently unallotted lands or an increase in animal unit months.

**NCDE-STD-GRZ-05.** Within the NCDE primary conservation area, there shall be no net increase in the number of active cattle grazing allotments above the baseline (see glossary) on NFS lands. Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently unallotted lands.

**NCDE-STD-GRZ-06.** Within the NCDE primary conservation area and zone 1, temporary permits for grazing by small livestock for purposes such as controlling invasive exotic weeds, reducing fire risk, or trailing of small livestock across NFS lands shall not result in an increase in bear-small livestock conflicts.

## **Guidelines**

**NCDE-GDL-GRZ-01.** On NFS lands within the NCDE primary conservation area, the number of open or active sheep grazing allotments should be reduced if an opportunity exists with a willing permittee, to reduce the risk of conflicts with grizzly bears.

**NCDE-GDL-GRZ-02.** Within the NCDE primary conservation area, an allotment management plan and plan of operation should specify any needed measures to protect key grizzly bear food production areas (e.g., wet meadows, stream bottoms, aspen groves, and other riparian wildlife habitats) from conflicting and competing use by livestock (this varies on a site-specific basis).

## **Special Forest Products (SFP)**

### **Desired condition**

**NCDE-DC-SFP-01.** National Forest System lands provide a variety of public services and special forest products (such as mushrooms, huckleberries, firewood) while minimizing the risk of grizzly bear-human conflicts on NFS lands in the NCDE.

### **Standard**

**NCDE-STD-SFP-01.** Special-use permits for apiaries (beehives) located on NFS lands shall incorporate measures including electric fencing to reduce the risk of grizzly bear-human conflicts, as specified in the food/wildlife attractant storage special order.

## **Renewable/Non-Renewable Energy and Mineral Resources (MIN)**

### **Desired condition**

**NCDE-DC-MIN-01.** Mineral materials are available based upon public interest, in-service needs, material availability, and valid existing rights, where consistent with desired conditions for other resources.

### **Standards**

**NCDE-STD-MIN-01.** Within the NCDE primary conservation area, mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil

and Gas Leasing Reform Act of 1987) occurring on NFS lands, where feasible shall avoid, minimize, and/or mitigate environmental impacts to grizzly bears or their habitat, subject to valid existing rights. Stipulations or mitigation measures already included in existing leases, permits, or plans of operation on NFS lands shall not be changed, nor will additional stipulations or mitigation measures be added, without the lease, permit, or plan of operation holder's agreement.

**NCDE-STD-MIN-02.** Within the NCDE primary conservation area, new or reauthorized permits, leases, and/or plans of operation shall include a provision for modification or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-MIN-03.** Within the NCDE primary conservation area, new plans of operation, permits, and/or leases for mineral activities shall include measures to reasonably mitigate potential impacts of mineral development for the following:

- land surface and vegetation disturbance;
- water table alterations that affect bear foods on the surface; and
- construction, operation, and reclamation of mine-related facilities such as impoundments, rights of way, motorized routes, pipelines, canals, transmission lines, or other structures.

**NCDE-STD-MIN-04.** Within the NCDE primary conservation area, in addition to measures included in the food/wildlife attractant special order(s), new plans of operation, permits, and/or leases for mineral activities shall include the following measures regarding grizzly bear attractants:

- bear-resistant food storage and garbage containers shall be used at development sites and at any campgrounds or dispersed sites where exploration or production-related human occupancy is anticipated;
- garbage shall be removed in a timely manner;
- road kills shall be removed daily during active operating periods to a designated location determined in close coordination with Montana Fish, Wildlife and Parks;
- feeding of wildlife shall not be allowed; and
- locations of work camps shall be approved in advance of operations. Food storage requirements shall be strictly adhered to in any work camps.

**NCDE-STD-MIN-05.** Within the NCDE primary conservation area, if minerals activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases for mineral activities shall include the following mitigation measures, stipulations, or surface use criteria regarding grizzly bear habitat:

- ground-disturbing activities in identified grizzly bear spring habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided between April 1 and June 30. If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears;
- seismic activity in identified grizzly bear denning habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided during the denning season (see glossary). If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts to the grizzly bear;
- cumulative impacts of multiple concurrent seismic and/or drilling operations shall be limited by timing restrictions. If timing restrictions are not practicable, reasonable and appropriate measures shall be taken to mitigate negative impacts to the grizzly bear;

- reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration, or mitigation of functioning aquatic systems and riparian habitat conservation areas shall identify how reclamation will occur, plant species to be used in reclamation, a timeframe of when reclamation will be completed, and monitoring criteria; and
- reclamation and revegetation of motorized routes, drilling pads, and other areas disturbed by mineral activities shall be completed as soon as practicable by the operator.

**NCDE-STD-MIN-06.** Within the NCDE primary conservation area, if mineral activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases shall include the following mitigation measures regarding motorized access:

- public motorized use that is not associated with minerals activities shall be prohibited on motorized routes constructed for exploration and/or development;
- a traffic management plan shall be developed as part of the proposed activity to identify when and how motorized routes will be used, maintained, and monitored (if required) and how motorized route standards and guidelines will be implemented after activities have ended;
- helicopter use associated with seismic activity, exploration, drilling, or development must follow an approved plan or permit; and
- speed limits shall be adopted on motorized routes if needed to prevent or reduce collisions with grizzly bears.

**NCDE-STD-MIN-07.** Within the NCDE primary conservation area, minerals contractors and lessees shall require employees to attend training related to safely living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter.

**NCDE-STD-MIN-08.** Within the NCDE primary conservation area, new leases for leasable minerals shall include a no surface occupancy stipulation (see glossary).

## Guidelines

**NCDE-GDL-MIN-01.** Within the NCDE primary conservation area, in addition to forestwide guidelines, the following guidelines apply to new leasable minerals activities, including leases, surface use plans for proposed wells or operations, and permits to conduct seismic exploration or drilling. To reduce potential grizzly bear disturbance or displacement, helicopter use plans should:

- avoid establishing recurring helicopter use (see glossary), especially in spring habitats or other known important grizzly bear habitats or use areas; and
- avoid establishing landing zones, especially in spring habitats or other known important grizzly bear habitats or use areas. If a landing zone is deemed necessary for safe implementation of the seismic or surface use plan or permit to drill, the landing zone should be constructed only in an area that has had site-specific analysis and approval.

**NCDE-GDL-MIN-02.** Within the NCDE primary conservation area, leasable energy activities should use the best available noise-reduction technology on equipment and motorized vehicles to reduce potential disturbance or displacement of grizzly bears, whenever possible.

**NCDE-GDL-MIN-03.** Within the NCDE primary conservation area, along motorized routes, seismic corridors, and pipelines constructed for leasable energy activities, wildlife cover should be maintained at regular intervals where present (this varies on a site-specific basis) in order to provide habitat connectivity for grizzly bears.



**NCDE-GDL-MIN-04.** Within the NCDE primary conservation area, for locatable and non-energy leasable minerals activities with the potential to adversely affect the grizzly bear or its habitat (this varies on a site-specific basis), the following tiered measures should be considered to mitigate impacts to grizzly bear habitat. Beginning at step 1, any subsequent steps would be implemented only if the prior steps are not possible or achievable.

- Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities compared to the original habitat (such as the same native vegetation).
- Step 2: If step 1 is not attainable, operators should either acquire a perpetual conservation easement (or easements) or purchase comparable or better replacement grizzly bear habitat within the primary conservation area. Acquisition of habitat within connectivity corridors could also be considered for mitigation, when appropriate. Habitat acquired for mitigation may require a purchase rate of > 1:1 on an acreage basis, depending on the quality of habitat degraded and habitat available for acquisition.
- Step 3: If steps 1 and 2 are not achievable, the next option is to offset negative effects to bears and grizzly bear habitat with other appropriate types of actions.

**NCDE-GDL-MIN-05.** Within the NCDE primary conservation area, carrying bear deterrent spray should be recommended to mineral permittees, lessees and operators to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-MIN-06.** Within the NCDE primary conservation area, available resources at existing gravel pits should be used before constructing new pits to reduce the risk of grizzly bear disturbance or displacement associated with blasting of rock or crushing of gravel.

## Lolo National Forest Plan Amendment

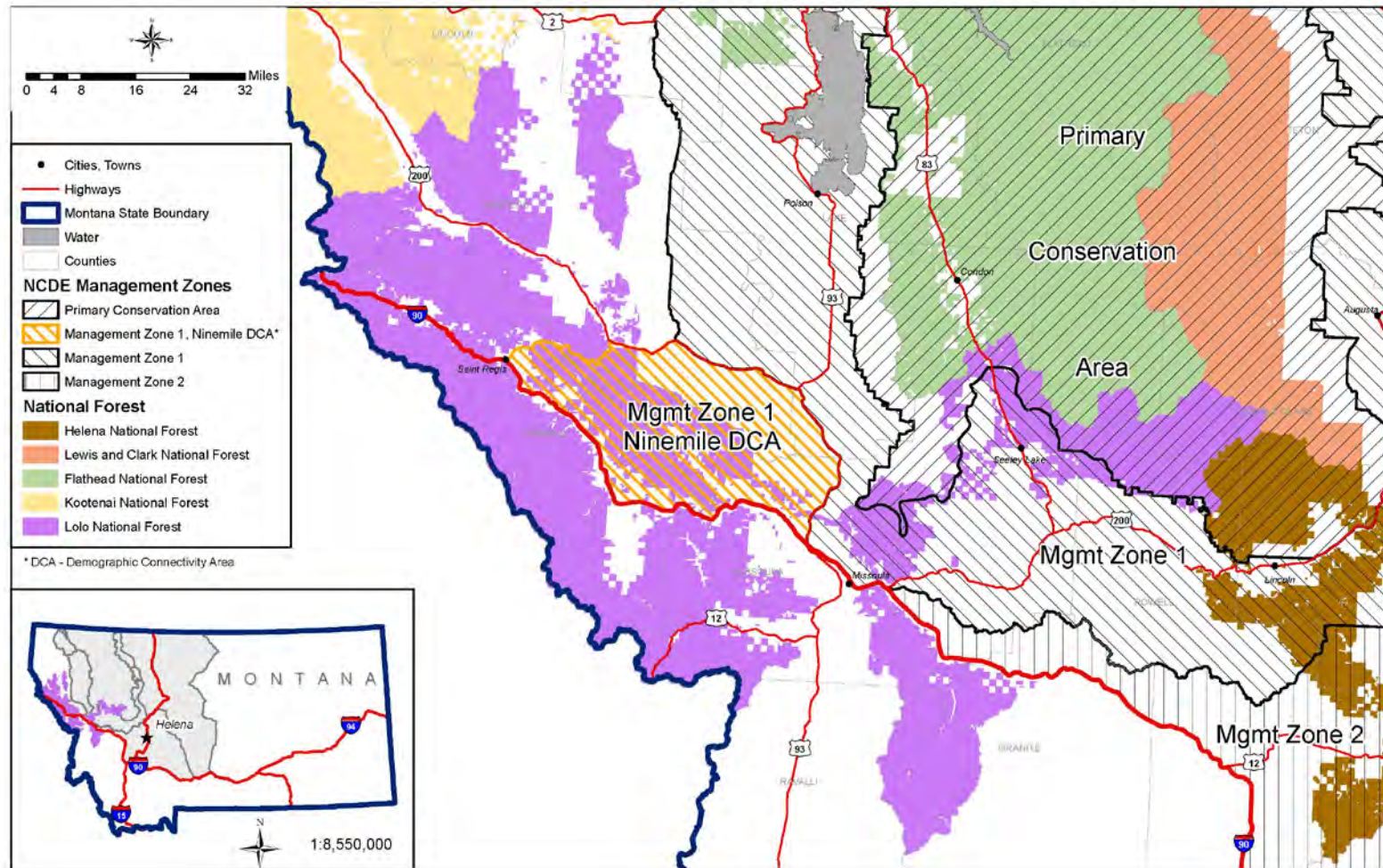


Figure 1-5. Grizzly bear management zones on the Lolo National Forest.

## Wildlife (WL)

### Desired conditions

**NCDE-DC-WL-01.** Within the NCDE primary conservation area, zone 1 (including the Ninemile demographic connectivity area), and zone 2, bear attractants on NFS lands are stored in a manner that reduces the risk of grizzly bear-human conflicts in the NCDE.

**NCDE-DC-WL-02.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), grizzly bear habitat on NFS lands contributes to sustaining the recovery of the grizzly bear population in the NCDE and contributes to connectivity with neighboring grizzly bear recovery zones.

**NCDE-DC-WL-03.** The risk of grizzly bear-human conflicts is reduced by information, education, and design features or criteria for management activities.

### Standards

**NCDE-STD-WL-01.** Grizzly bear habitat on NFS lands in the NCDE shall be delineated and managed as primary conservation area, zone 1 (including the Ninemile demographic connectivity area), or zone 2 (see figure 1-5 or subsequent USFWS updates if applicable).

**NCDE-STD-WL-02.** Within the NCDE primary conservation area, zone 1 (including the Ninemile demographic connectivity area), and zone 2, food/wildlife attractant storage special order(s) shall apply to NFS lands.

**NCDE-STD-WL-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be calculated for roads used for projects (as defined by “project (in grizzly bear habitat in the NCDE)”) during the non-denning season (see glossary). Calculations will include estimated changes for each year of the anticipated duration of the project and will be incorporated into the 10-year running average required by standard NCDE-STD-AR-03.

### Guidelines

**NCDE-GDL-WL-01.** Within the NCDE primary conservation area, zone 1 (including the Ninemile demographic connectivity area), and zone 2, contractors, permittees, lessees, operators, and their employees should be informed of food/wildlife attractant storage special order(s) and procedures for safely working and recreating in grizzly bear country, prior to turnout of livestock or beginning work and annually thereafter, in order to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-02.** Within the NCDE primary conservation area, zone 1 (including the Ninemile demographic connectivity area), and zone 2, if a contractor, permittee, lessee, operator or their employees elect to camp on NFS lands other than in a developed recreation site, the site should be evaluated and written authorization (i.e., a campsite agreement that includes the food/wildlife attractant storage special order) should be provided before the campsite is established. The purpose is to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-WL-03.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), clover should not be used in seed mixes on NFS lands. Native seed mixes or those that are less palatable to grizzly bears should be used so that seeded areas do not become an attractant.

## Access and Recreation (AR)

### Desired conditions

**NCDE-DC-AR-01.** Within the NCDE primary conservation area, motorized access provides for multiple uses (such as harvesting of timber and non-timber forest products; hunting, fishing, and recreation opportunities) on NFS lands while providing open motorized route density, total motorized route density, and secure core levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-AR-02.** Within the NCDE primary conservation area, the number, capacity, and improvements of developed recreation sites provide for user comfort and safety while minimizing the risk of grizzly bear-human conflicts on NFS lands.

**NCDE-DC-AR-03.** Within each bear management unit in the primary conservation area, increases in the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use during the non-denning season are at levels that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

### Standards

**NCDE-STD-AR-01.** Within the NCDE primary conservation area, motorized use of roads with public restrictions shall be permitted for administrative use (see glossary) as long as doing so does not exceed either six trips (three round trips) per week *or* one 30-day unlimited use period during the non-denning season (see glossary). The exception to this standard is:

- emergency situations as defined by 36 Code of Federal Regulations (CFR) 218.21.

Note: Administrative use is not included in baseline calculations and is not included in calculations of net increases or decreases. If the level of administrative use exceeds this standard, the use is counted as a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary).

**NCDE-STD-AR-02.** In each bear management subunit within the NCDE primary conservation area, there shall be no net decrease to the baseline (see glossary) for secure core and no net increase to the baseline for open motorized route density or total motorized route density on NFS lands during the non-denning season (see glossary). The following conditions are not considered a net increase/decrease from the baseline:

- administrative use (see glossary);
- temporary use of a motorized route for a project (see “project (in grizzly bear habitat in the NCDE)” in the glossary) that meets the conditions stipulated in NCDE-STD-AR-03;
- mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines listed under NCDE-MIN;
- updated or improved data on a motorized route without an actual change on the ground;
- changes in technology or projections that result in changed open motorized route density, total motorized route density, or secure core values without actual change on the ground (e.g., a switch from the North American Datum of 1927 to the North American Datum of 1983 geodetic reference system);

- a road closure location is moved a short distance to a better location (e.g., to the nearest intersection or turnout) to allow a turn-around providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- the agency exchanges, acquires, buys, or sells lands with motorized routes;
- a change in a motorized route necessary to comply with Federal laws;
- a change in a motorized route necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage/concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts);
- a change made by an adjacent landowner that decreases the percentage of secure core or increases open motorized route density or total motorized route density values on an adjacent national forest;
- use of a motorized route for emergency situations as defined by 36 CFR 218.21; and
- temporary roads (see glossary).

**NCDE-STD-AR-03.** In each bear management subunit within the NCDE primary conservation area, temporary changes in open motorized route density, total motorized route density, and secure core shall be allowed for projects (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary). The 10-year running average for open motorized route density, total motorized route density, and secure core shall not exceed the following limits during the non-denning season (see glossary):

- 5 percent temporary increase in open motorized route density in each bear management subunit (i.e., open motorized route density baseline plus 5 percent);
- 3 percent temporary increase in total motorized route density in each bear management subunit (i.e., total motorized route density baseline plus 3 percent); and
- 2 percent temporary decrease in secure core in each bear management subunit (i.e., secure core baseline minus 2 percent).

Exceptions to this standard include

- temporary changes for emergency situations as defined by 36 CFR 218.21 and
- temporary changes for actions where valid existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases).

Refer to page 1-51 for examples of how to calculate and apply the 10-year running average and temporary increase/decrease.

**NCDE-STD-AR-04.** Within the NCDE primary conservation area, a restricted road may be temporarily opened for public motorized use to allow authorized uses (such as firewood gathering), provided the period of use does not exceed 30 consecutive days during one non-denning season and occurs outside of spring and fall bear hunting seasons. However, temporary public use of a restricted road shall not be authorized in secure core (see glossary).

**NCDE-STD-AR-05.** Within the NCDE primary conservation area, the number and capacity of developed recreation sites on NFS lands that are designed and managed for overnight use by the public during the non-denning season (e.g., campgrounds, cabin rentals, huts, guest lodges, recreation residences) shall be limited to one increase above the baseline (see glossary) in the number or capacity per decade per bear management unit. The following conditions are not considered an increase from the baseline:

- the agency obtains better information or updated information in its database(s);

- the agency acquires land that contains developed recreation sites;
- the agency increases the number or capacity of a developed recreation site in order to comply with Federal laws;
- the agency maintains or modifies an existing overnight developed or dispersed recreation site in such a way that does not increase the number or capacity of the site (e.g., installing a pit toilet to avoid damage to water resources or installing a bear-resistant food storage structure to reduce grizzly bear-human conflicts);
- the agency modifies an existing developed recreation site to enhance human safety (e.g., enlarging a road pullout to allow trailers to safely turn around);
- the agency operates a developed recreation site to allow overnight use only during the denning season (see glossary); and
- the agency makes a corresponding reduction in the number or capacity of overnight developed recreation sites in the same bear management unit through any of the following means: (1) equal reduction in capacity at another site; (2) closure of a developed site(s); or (3) consolidation and/or elimination of dispersed camping, when and where it can be enforced effectively and it is reasonably assured that new dispersed sites will not develop nearby. If these measures are used to offset an increase in number or capacity, they must be in place before the initiation of the increase. If the agency reduces the number or capacity of developed sites below baseline levels, these reductions may be used at a future date to mitigate equivalent impacts of an increase, expansion, or change of use in developed sites within that bear management unit.

Note: This standard does not apply to dispersed recreation sites or to developed recreation sites managed for day use only (e.g., outfitter camps, roadside trail crossings, or interpretive pullouts; trailheads, picnic areas, or boat launches that are closed at night; ski areas that do not have overnight lodging).

**NCDE-STD-AR-06.** Within the NCDE primary conservation area, new or reauthorized recreation permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-AR-07.** Within the NCDE primary conservation area, new or reauthorized permits for ski areas on NFS lands that operate during the non-denning season shall include requirements to limit the risk of grizzly bear-human conflicts (e.g., to store garbage in a bear-resistant manner).

**NCDE-STD-AR-08.** Within modeled grizzly bear denning habitat in the NCDE primary conservation area, there shall be no net increase in the percentage of area or miles of routes designated for motorized over-snow vehicle use on NFS lands during the den emergence time period (see glossary).

## Guidelines

**NCDE-GDL-AR-01.** In each bear management subunit within the NCDE primary conservation area, each project (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) should be designed so that on-the-ground implementation does not exceed 5 years to reduce the potential duration of grizzly bear disturbance or displacement due to project-related activities. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);

- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the five-year time limitation is required (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-02.** Within the NCDE primary conservation area, secure core, open motorized route density, and total motorized route density should be restored to pre-project levels (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary) within 1 year after completion of the project to reduce the potential duration of grizzly bear disturbance due to project-related activities. Exceptions may be made where necessary, for example to accommodate:

- actions where existing rights preclude or constrain agency discretion (e.g., certain contracts, permits, leases);
- prescribed burning (including slash disposal), best management practices to protect water quality, or required reforestation activities; or
- emergency situations as defined by 36 CFR 218.21.

If an extension to the 1-year time limitation is made (e.g., to meet contractual obligations or to complete on-the-ground treatments), the reasons should be documented in writing prior to authorization of the extension.

**NCDE-GDL-AR-03.** Within the NCDE primary conservation area, if the number or capacity of day-use or overnight developed recreation sites is increased, the project should include one or more measures to reduce the risk of grizzly-bear human conflicts in that bear management unit. These measures can include but are not limited to additional public information and education; providing backcountry food-hanging poles or bear-resistant food or garbage storage devices; including design criteria that would limit capacity increases to those needed for public health and safety; and increasing law enforcement and patrols).

## Terrestrial Ecosystems Vegetation (VEG)

### Desired conditions

**NCDE-DC-VEG-01.** Within the NCDE primary conservation area, the amount, type, and distribution of vegetation provide for the ecological, social, and economic sustainability of NFS lands while providing habitat components that contribute to sustaining the recovery of the grizzly bear population in the NCDE.

**NCDE-DC-VEG-02.** Within the NCDE primary conservation area, there is a mosaic of successional stages to provide for grizzly bear habitat needs over the long term.

### Guidelines

**NCDE-GDL-VEG-01.** Within the NCDE primary conservation area, measures to reduce the risk of disturbance to the grizzly bear population should be incorporated into vegetation and fuels project design criteria, which vary on a site-specific basis (e.g., some activities should be restricted in spring habitat during the spring; areas with low levels of human activity should be provided adjacent to areas with high levels of disturbance). Note: Management activities such as pre-commercial thinning, burning, weed spraying, and implementation of road best management practices may need to be completed during the spring in order to meet resource objectives (especially if needed to prevent resource damage), in which



case other measures should be used to reduce the risk of disturbance (e.g., limiting the duration of the activity or limiting the use of closed roads).

**NCDE-GDL-VEG-02.** Within the NCDE primary conservation area, vegetation management activities should be designed to avoid detrimental effects on the grizzly bear population and to include one or more measures to protect, maintain, increase, and/or improve grizzly habitat quantity or quality (e.g., promoting growth of berry-producing shrubs, forbs, or grasses known to be bear foods) in areas where it would not increase the risk of grizzly bear-human conflicts.

**NCDE-GDL-VEG-03.** Within the NCDE primary conservation area, measures to retain cover (where present) along a portion of grass/forb/shrub openings, riparian wildlife habitat, or wetlands should be incorporated in project design criteria (this varies on a site-specific basis).

**NCDE-GDL-VEG-04.** Within the NCDE primary conservation area, vegetation management projects (including timber sales and other non-commercial vegetation management contracts) should include a provision for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-GDL-VEG-05.** To reduce the risk of grizzly-bear human conflicts within the NCDE primary conservation area, vegetation management activities designed to enhance grizzly habitat (e.g., to increase huckleberry production) should not occur in or next to campgrounds, administrative facilities, or other developed recreation sites that operate during the non-denning season.

## Grazing (GRZ)

### Desired condition

**NCDE-DC-GRZ-01.** Within the NCDE primary conservation area, the number, capacity of, and improvements on cattle and sheep grazing allotments support ecologically sustainable grazing, and temporary grazing permits are used effectively for management of noxious weeds while minimizing the risk of grizzly bear-human conflicts on NFS lands.

### Standards

**NCDE-STD-GRZ-01.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), new or reauthorized livestock grazing permits and annual operating plans shall incorporate requirements to reduce the risk of grizzly bear-human conflicts (e.g., a food/wildlife attractant storage special order). New or reauthorized permits shall include a clause providing for modification, cancellation, suspension, or temporary cessation of activities, if needed, to resolve a grizzly bear-human conflict situation.

**NCDE-STD-GRZ-02.** Within the NCDE primary conservation area, a sheep grazing permit in non-use status shall not be allowed to increase allowable animal unit months beyond what was previously permitted prior to being in non-use when it is returned to use. Note: The Lolo National Forest does not have any sheep allotments.

**NCDE-STD-GRZ-03.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), permits for livestock grazing shall include a provision that requires the reporting of livestock carcasses within 24 hours of discovery, which shall be followed by proper disposal of the carcass. Boneyards shall not be established on NFS lands.

**NCDE-STD-GRZ-04.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), there shall be no net increase in the number of active sheep allotments or in permitted sheep animal unit months above the baseline (see glossary) on NFS lands. Allowable animal unit months shall not be increased for inactive allotments. Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently un-allotted lands or an increase in animal unit months.

**NCDE-STD-GRZ-05.** Within the NCDE primary conservation area, there shall be no net increase in the number of active cattle grazing allotments above the baseline (see glossary) on NFS lands. Note: Existing allotments may be combined or divided as long as doing so does not result in grazing allotments in currently un-allotted lands.

**NCDE-STD-GRZ-06.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), temporary permits for grazing by small livestock for purposes such as controlling invasive exotic weeds, reducing fire risk, or trailing of small livestock across NFS lands shall not result in an increase in bear-small livestock conflicts.

## **Guidelines**

**NCDE-GDL-GRZ-01.** On NFS lands within the NCDE primary conservation area, the number of open or active sheep grazing allotments should be reduced if an opportunity exists with a willing permittee, to reduce the risk of conflicts with grizzly bears.

**NCDE-GDL-GRZ-02.** Within the NCDE primary conservation area, an allotment management plan and plan of operation should specify any needed measures to protect key grizzly bear food production areas (e.g., wet meadows, stream bottoms, aspen groves, and other riparian wildlife habitats) from conflicting and competing use by livestock (this varies on a site-specific basis).

## **Special Forest Products (SFP)**

### **Desired condition**

**NCDE-DC-SFP-01.** National Forest System lands provide a variety of public services and special forest products (such as mushrooms, huckleberries, firewood) while minimizing the risk of grizzly bear-human conflicts on NFS lands in the NCDE.

### **Standard**

**NCDE-STD-SFP-01.** Special-use permits for apiaries (beehives) located on NFS lands shall incorporate measures including electric fencing to reduce the risk of grizzly bear-human conflicts, as specified in the food/wildlife attractant storage special order.

## **Renewable/Non-Renewable Energy and Mineral Resources (MIN)**

### **Desired condition**

**NCDE-DC-MIN-01.** Mineral materials are available based upon public interest, in-service needs, material availability, and valid existing rights, where consistent with desired conditions for other resources.

## Standards

**NCDE-STD-MIN-01.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) occurring on NFS lands, where feasible shall avoid, minimize, and/or mitigate environmental impacts to grizzly bears or their habitat, subject to valid existing rights. Stipulations or mitigation measures already included in existing leases, permits, or plans of operation on NFS lands shall not be changed, nor will additional stipulations or mitigation measures be added, without the lease, permit, or plan of operation holder's agreement.

**NCDE-STD-MIN-02.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), new or reauthorized permits, leases, and/or plans of operation shall include a provision for modification or temporary cessation of activities if needed to resolve a grizzly bear-human conflict situation.

**NCDE-STD-MIN-03.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), new plans of operation, permits, and/or leases for mineral activities shall include measures to reasonably mitigate potential impacts of mineral development for the following:

- land surface and vegetation disturbance;
- water table alterations that affect bear foods on the surface; and
- construction, operation, and reclamation of mine-related facilities such as impoundments, rights of way, motorized routes, pipelines, canals, transmission lines, or other structures.

**NCDE-STD-MIN-04.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), in addition to measures included in the food/wildlife attractant special order(s), new plans of operation, permits, and/or leases for mineral activities shall include the following measures regarding grizzly bear attractants:

- bear-resistant food storage and garbage containers shall be used at development sites and at any campgrounds or dispersed sites where exploration or production-related human occupancy is anticipated;
- garbage shall be removed in a timely manner;
- road kills shall be removed daily during active operating periods to a designated location determined in close coordination with Montana Fish, Wildlife and Parks;
- feeding of wildlife shall not be allowed; and
- locations of work camps shall be approved in advance of operations. Food storage requirements shall be strictly adhered to in any work camps.

**NCDE-STD-MIN-05.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), if minerals activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases for mineral activities shall include the following mitigation measures, stipulations, or surface use criteria regarding grizzly bear habitat:

- ground-disturbing activities in identified grizzly bear spring habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided between April 1 and June 30. If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts of mineral activity to grizzly bears;

- seismic activity in identified grizzly bear denning habitat (as identified in a site-specific biological evaluation or other environmental document) shall be avoided during the denning season (see glossary). If timing restrictions are not practicable, other measures shall be taken to reasonably mitigate negative impacts to the grizzly bear;
- cumulative impacts of multiple concurrent seismic and/or drilling operations shall be limited by timing restrictions. If timing restrictions are not practicable, reasonable and appropriate measures shall be taken to mitigate negative impacts to the grizzly bear;
- reasonable and appropriate measures regarding the maintenance, rehabilitation, restoration, or mitigation of functioning aquatic systems and riparian habitat conservation areas shall identify how reclamation will occur, plant species to be used in reclamation, a timeframe of when reclamation will be completed, and monitoring criteria; and
- reclamation and revegetation of motorized routes, drilling pads, and other areas disturbed by mineral activities shall be completed as soon as practicable by the operator.

**NCDE-STD-MIN-06.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), if mineral activities have the potential to adversely affect grizzly bears or their habitat as determined by a site-specific analysis, new plans of operation, permits, and/or leases shall include the following mitigation measures regarding motorized access:

- public motorized use that is not associated with minerals activities shall be prohibited on motorized routes constructed for exploration and/or development;
- a traffic management plan shall be developed as part of the proposed activity to identify when and how motorized routes will be used, maintained, and monitored (if required) and how motorized route standards and guidelines will be implemented after activities have ended;
- helicopter use associated with seismic activity, exploration, drilling, or development must follow an approved plan or permit; and
- speed limits shall be adopted on motorized routes if needed to prevent or reduce collisions with grizzly bears.

**NCDE-STD-MIN-07.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), minerals contractors and lessees shall require employees to attend training related to safely living near and working in grizzly bear habitat prior to starting work and on an annual basis thereafter.

**NCDE-STD-MIN-08.** Within the NCDE primary conservation area, new leases for leasable minerals shall include a no surface occupancy stipulation (see glossary).

## Guidelines

**NCDE-GDL-MIN-01.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), in addition to forestwide guidelines, the following guidelines apply to new leasable minerals activities, including leases, surface use plans for proposed wells or operations, and permits to conduct seismic exploration or drilling. To reduce potential grizzly bear disturbance or displacement, helicopter use plans should:

- avoid establishing recurring helicopter use (see glossary), especially in spring habitats or other known important grizzly bear habitats or use areas; and
- avoid establishing landing zones, especially in spring habitats or other known important grizzly bear habitats or use areas. If a landing zone is deemed necessary for safe implementation of the

seismic or surface use plan or permit to drill, the landing zone should be constructed only in an area that has had site-specific analysis and approval.

**NCDE-GDL-MIN-02.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), leasable energy activities should use the best available noise-reduction technology on equipment and motorized vehicles to reduce potential disturbance or displacement of grizzly bears, whenever possible.

**NCDE-GDL-MIN-03.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), along motorized routes, seismic corridors, and pipelines constructed for leasable energy activities, wildlife cover should be maintained at regular intervals where present (this varies on a site-specific basis) in order to provide habitat connectivity for grizzly bears.

**NCDE-GDL-MIN-04.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), for locatable and non-energy leasable minerals activities with the potential to adversely affect the grizzly bear or its habitat (this varies on a site-specific basis), the following tiered measures should be considered to mitigate impacts to grizzly bear habitat. Beginning at step 1, any subsequent steps would be implemented only if the prior steps are not possible or achievable.

- Step 1: The operator should reclaim the affected area back to suitable bear habitat that has similar or improved characteristics and qualities compared to the original habitat (such as the same native vegetation).
- Step 2: If step 1 is not attainable, operators should either acquire a perpetual conservation easement (or easements) or purchase comparable or better replacement grizzly bear habitat within the primary conservation area. Acquisition of habitat within connectivity corridors could also be considered for mitigation, when appropriate. Habitat acquired for mitigation may require a purchase rate of > 1:1 on an acreage basis, depending on the quality of habitat degraded and habitat available for acquisition.
- Step 3: If steps 1 and 2 are not achievable, the next option is to offset negative effects to bears and grizzly bear habitat with other appropriate types of actions.

**NCDE-GDL-MIN-05.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), carrying bear deterrent spray should be recommended to mineral permittees, lessees and operators to reduce the risk of grizzly bear-human conflicts.

**NCDE-GDL-MIN-06.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), available resources at existing gravel pits should be used before constructing new pits to reduce the risk of grizzly bear disturbance or displacement associated with blasting of rock or crushing of gravel.

## Lolo National Forest—Zone 1

### Desired conditions

**NCDE-LNF Zone 1-DC-01.** Within the Lolo National Forest portion of NCDE zone 1 (including the Ninemile demographic connectivity area) (see figure 1-5), roads provide for public and administrative access to NFS lands while contributing to sustaining the grizzly bear population in the NCDE. The Ninemile demographic connectivity area provides habitat that can be used by female grizzly bears and allows for bear movement between grizzly bear ecosystems.

**NCDE-LNF Zone 1-DC-02.** In areas between the primary conservation area and the Ninemile demographic connectivity area, NFS lands are consolidated and conservation easements with willing landowners are supported in a manner that provides habitat connectivity and facilitates movement of wildlife.

## Standards

**NCDE-LNF Zone 1-STD-01.** Within zone 1 (outside the Ninemile demographic connectivity area) on the Lolo National Forest, there shall be no net increase above the baseline (see glossary) in the density of roads open to public motorized use during the non-denning season on National Forest System lands. Inside the Ninemile demographic connectivity area, there shall be no net increase above the baseline (see glossary) in the density of roads and trails open to public motorized use during the non-denning season on National Forest System lands. Density is calculated by dividing the total miles open to public motorized use on NFS lands during the non-denning season, by the total square miles of NFS lands in that same area. This standard does not apply to the following:

- motorized use by agency personnel or others authorized by the appropriate agency personnel;
- temporarily opening a road for a short periods of time to allow for public firewood gathering and other authorized use;
- updated/improved data on a motorized route without an actual change on the ground;
- changes in technology or projections that result in changed calculations without actual change on the ground (e.g., a switch from the North American Datum of 1927 to the North American Datum of 1983 geodetic reference system);
- a road closure location is moved a short distance (e.g., to the nearest intersection or turnout ) to a better location to allow turn-arounds providing for public safety, to reduce vandalism, or to improve enforcement of the road closure;
- the agency exchanges, acquires, buys, or sells lands with motorized routes;
- a change in an open road necessary to comply with Federal laws;
- motorized use for mining activities (as authorized under the Mining Law of 1872) and oil and gas activities (as authorized under the Federal Onshore Oil and Gas Leasing Reform Act of 1987) conducted in accordance with valid existing rights and applicable standards and guidelines;
- a change in a motorized route is necessary to address grizzly bear-human conflicts, human safety concerns, or resource damage/concerns (e.g., a road paralleling a stream may be decommissioned and replaced by a new upslope road to reduce water quality impacts);
- motorized use for emergency situations as defined by 36 CFR 218.21; or
- temporary roads (see glossary).

## Monitoring (MON)

**NCDE-MON-01.** Within the NCDE primary conservation area, the levels of secure core, open motorized route density ( $> 1$  mile/mile<sup>2</sup>), and total motorized route density ( $> 2$  miles/mile<sup>2</sup>) within each bear management unit subunit during the non-denning season will be monitored and compared to the baseline.

**NCDE-MON-02.** Within the NCDE primary conservation area, the number and overnight capacity of developed recreation sites designed and managed for overnight use on NFS lands within each bear management unit will be monitored and compared to the baseline. The number of day-use recreation sites

and trailheads in each bear management unit in the NCDE primary conservation area and administrative sites (see glossary) will also be monitored.

**NCDE-MON-03.** Within the NCDE primary conservation area, the number of commercial livestock grazing allotments and the number of sheep animal unit months will be monitored and compared to the baseline. The number of grizzly bear-livestock conflicts occurring on NFS lands within the primary conservation area, zone 1, and zone 2 will be monitored.

**NCDE-MON-04.** Within the NCDE primary conservation area and zone 1 (including the Ninemile demographic connectivity area), where it is determined there is potential for adverse effects to the grizzly bear population or its habitat resulting from leasable or locatable mineral activities, a monitoring plan will be developed for the life of the mineral activity. The monitoring plan will outline how changes in habitat and/or disturbance to bears will be monitored and how mitigations (e.g., monitoring of mining reclamation measures) will be identified and funded.

**NCDE-MON-05.** Within the NCDE primary conservation area, the 10-year running average of open motorized route density, total motorize route density and secure core will be monitored by the Forest and documented for each project (see NCDE STD-AR-03 and “project (in grizzly bear habitat in the NCDE)” in the glossary).

**NCDE-MON-06.** Within the NCDE primary conservation area, the duration of projects will be monitored by the Forest (see NCDE-GDL-AR-01 and the definition of “project (in grizzly bear habitat in the NCDE)” in the glossary).

**NCDE-MON-07.** In NCDE zone 1 on the Helena National Forest, the density of motorized routes open for public use during the non-denning season on National Forest System lands will be monitored and compared with the baseline.

**NCDE-MON-08.** In NCDE zone 1 on the Kootenai National Forest, the permanent linear miles of open roads, total roads and motorized trails on National Forest System lands within the bears outside recovery zone (BORZ) polygons will be monitored.

**NCDE-MON-09.** In NCDE zone 1 outside of the Ninemile demographic connectivity area on the Lolo National Forest, the density of roads open for public motorized use during the non-denning season on NFS lands will be monitored and compared with the baseline. Inside the Ninemile demographic connectivity area, the density of roads and trails open to public motorized use on NFS lands will be monitored and compared with the baseline.

**NCDE-MON-10.** In the NCDE primary conservation area, the percentage of modeled grizzly bear denning habitat (as updated by MFWP) where public motorized over-snow vehicle use is allowed during the den emergence time period will be monitored and compared to the baseline.



## How Changes in Route Density and Secure Core Would Be Implemented

As stated in NCDE-STD-AR-03, in each bear management subunit within the NCDE primary conservation area, temporary changes in the open motorized route density, total motorized route density, and secure core shall be allowed for projects (as defined by “project (in grizzly bear habitat in the NCDE)” in the glossary).

The 10-year running average for open motorized route density, total motorized route density, and secure core numeric parameters shall not exceed the following limits per bear management subunit:

- 5 percent temporary increase in open motorized route density in each subunit (i.e., open motorized route density baseline plus 5 percent);
- 3 percent temporary increase in total motorized route density in each subunit (i.e., total motorized route density baseline plus 3 percent);
- 2 percent temporary decrease in secure core in each subunit (i.e., secure core baseline minus 2 percent).

## Hypothetical Example

The following hypothetical example (displayed as table 1-2 and table 1-3) shows how temporary changes in open motorized route density (OMRD), total motorized route density (TMRD), and secure core would be implemented for a project.

**Table 1-2. Values in a bear management subunit for OMRD, TMRD, and secure core for project in years 11 through 14**

Variable	Baseline Value	Allowed Value for Project	year 1	year 2	year 3	year 4	year 5	year 6	year 7	year 8	year 9	year 10	project year 11	project year 12	project year 13	project year 14	year 15	year 16	year 17
OMRD	19	24	19	19	19	19	19	19	19	19	19	19	31	31	31	31	19	19	19
TMRD	19	22	19	19	19	19	19	19	19	19	19	19	22	22	22	22	19	19	19
Secure Core	69	67	69	69	69	69	69	69	69	69	69	69	63	63	63	63	69	69	69

**Table 1-3. Using data from table 1-2 to show the 10-year running averages for OMRD, TMRD, and secure core before, during, and after project completion**

Variable	Before yr 1-10	During yr 2-11	During yr 3-12	During yr 4-13	During yr 5-14	During yr 6-15	After yr 7-16	After yr 8-17
OMRD	19	20	21	23	24	24	24	24
TMRD	19	19	20	20	20	20	20	20
Secure Core	69	69	68	67	67	67	67	67

yr = year

It should be noted that in this hypothetical example, another project in this subunit would not be possible until year 24, unless that project did not require any changes in values for open motorized route density, total motorized route density, or secure core.

## Glossary

If a term's definition(s) is associated with a particular species or management direction or originates from a specific source, the source is cited or applicable direction is referenced using the following bracketed abbreviations:

The following terms, and definitions, are to be used only where they apply within the Northern Continental Divide Ecosystem (NCDE) for grizzly bears, see amendment standard NCDE-STD-WL-01.

**administrative site** A location or facility constructed for use primarily by government employees to facilitate the administration and management of public lands. Examples on NFS lands include, but are not limited to, ranger stations, warehouses, and guard stations.

**administrative use** A generic term for authorized agency activity. Specifically, in the portion of the NCDE for grizzly bears mapped as the primary conservation area, motorized use of roads closed to the public is permitted for Federal agency personnel or other personnel authorized to perform duties by appropriate agency officials as long as doing so does not exceed either six trips (three round trips) per week *or* one 30-day unlimited use period during the non-denning season (see also **non-denning season**).

**baseline** The baseline for the NCDE is defined as conditions as of December 31, 2011, as modified by changes in numbers that were evaluated and found to be acceptable through the Endangered Species Act Section 7 consultation with USFWS while the grizzly bear was listed as threatened. The baseline will be updated to reflect changes allowed under the standards and guidelines.

**bear management subunit** An area of a bear management unit, in the portion of the NCDE for grizzly bears mapped as the primary conservation area, representing the approximate size of an average annual female grizzly bear home range (e.g., 31-68 square miles, (Mace & Roberts, 2012<sup>1</sup>)).

**bear management unit** An area about 400 square miles, in the portion of the NCDE for grizzly bears mapped as the primary conservation area, that meets yearlong habitat needs of both male and female grizzly bears.

**boneyard** An established site that is used repeatedly by a grazing permittee for disposing of entire animal carcasses.

**capacity (of developed recreation sites within the NCDE primary conservation area)** The number of sites available for overnight use (e.g., the number of sites in a campground; the number of rooms available for lodging (as a commercial rental); or the number of cabins, bunkhouses, or recreation residences managed under a special-use permit).

**consultation** See **interagency consultation**.

**cover** The elements of the environment used by an animal for hiding. Cover varies on a site-specific basis and depends on the species or the time of year. Cover may include topography as well as a variety of vegetation types (e.g., shrubs, dead trees, and live trees). The amount and quality of cover needed depends on the animal's size, mobility, and reluctance or willingness to venture into relatively open areas.

---

<sup>1</sup> R. D. Mace & L. L. Roberts (2012), Northern Continental Divide Ecosystem grizzly bear monitoring team annual report, 2012 ( Kalispell, MT: Montana Fish, Wildlife & Parks), retrieved from <http://fwp.mt.gov/fishAndWildlife/management/grizzlyBear/monitoring.html>.

**demographic connectivity area** an area intended to allow female grizzly bear occupancy and potential dispersal beyond the NCDE to other recovery areas.

**den emergence time period** The time period in the spring when a grizzly bear emerges from its den and remains in the vicinity before moving to lower elevations. The den emergence time period occurs at the beginning of the non-denning season. Females with cubs usually emerge later and spend more time (a few days to a few weeks) near the den after emergence than do male bears.

**denning season** The typical time period, within the NCDE, during which most grizzly bears are hibernating in dens. There are no restrictions on motorized use related to grizzly bears during the denning season, which occurs

- west of the Continental Divide: from December 1 through March 31.
- east of the Continental Divide: from December 1 through April 15.

**developed recreation site capacity within the NCDE primary conservation area** For purposes of implementing standard NCDE-STD-AR-05, developed recreation site capacity on NFS lands that are designed and managed for overnight use includes

- the number of camp sites available in a campground,
- the number of rooms available for lodging at a ski area or guest lodge,
- the maximum sleeping capacity of a cabin rental or bunkhouse that is available for overnight use by the public, and
- the maximum parking capacity at picnic areas, trailheads, or boat launches that are not closed to overnight use.

**developed recreation site within the NCDE primary conservation area** For purposes of implementing standard NCDE-STD-AR-05, developed recreation sites on NFS lands that are designed and managed for overnight use include campgrounds, lodging at ski areas, cabin rentals, huts, guest lodges, and recreation residences. This standard does not apply to dispersed recreations sites nor to developed recreation sites managed for day-use only (e.g., outfitter camps, roadside trail crossings or interpretive pull-outs; trailheads, picnic areas, or boat launches that are closed at night; and ski areas that do not have overnight lodging).

**dispersed recreation** An area in a national forest or national grassland with limited or no amenities provided for recreational users (36 CFR § 261.2).

**emergency situation** A circumstance on NFS lands for which immediate implementation of all or part of a decision is necessary for relief from hazards threatening human health and safety or natural resources on those NFS or adjacent lands or that would result in substantial loss of economic value to the Federal Government if implementation of the decision were delayed (must meet the requirements of 36 § CFR 218.21).

**grazing allotment** A designated area of land that is available for livestock grazing and is represented on a map. A grazing allotment can include NFS and non-NFS lands. Permits are issued for the use of allotments or portions of allotments. Allotments may be

- **active:** Livestock grazing allotments that are in use, including pack and saddle stock allotments.
- **closed:** Areas having suitable livestock range that have been closed to livestock grazing by administrative decision or action.

- **combined:** An allotment that has been combined into another allotment and therefore no longer exists as an independent allotment.
- **vacant:** An allotment that does not have a current grazing permit issued. (Forest Service Manual (FSM) 2205)

**grazing permit in inactive status** A grazing permit for which all permitted uses have expired, been cancelled, or been waived.

**grazing permit in non-use status** A grazing permit that is not being used. Non-use of a term grazing permit, in whole or in part, must be approved by a Forest supervisor and is allowed for permittee convenience, resource protection or development, or range research (Forest Service Manual 2231.7).

**grizzly bear-human conflict** An interaction between a grizzly bear and human in which bears either do, or attempt to, injure people, damage property, kill or injure livestock, damage beehives, or obtain anthropogenic foods or attractants or agricultural crops.

**interagency consultation** A process required by Section 7 of the Endangered Species Act whereby federal agencies proposing activities that may affect a listed species or critical habitat confer with the U.S. Fish and Wildlife Service about the impacts of the activity on the species (50 CFR 402).

**livestock** A type of domestic animal raised for commercial production purposes, e.g., cattle. Small livestock refers to animals smaller than a cow, such as sheep, goats, and llamas.

**mitigate** To avoid, minimize, rectify, reduce, or compensate the adverse environmental impacts associated with an action.

**motorized route** A NFS road or trail that is designated for motorized use on a motor vehicle use map pursuant to 36 CFR 212.51.

**motorized use** The designation of roads, trails, and areas that are open to motor vehicle use as specified in Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 /36 CFR §§ 212, 251, 261, Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule.

**moving window analysis** A geographic information system procedure that quantifies the density of roads and trails by incrementally moving a template across a digital map.

**net change** The difference in a measurement (such as road density) after on-the-ground changes are accounted for pre- and post-project; allows for temporary changes during a project.

**no surface occupancy** A stipulation in a fluid mineral lease that prohibits use or occupancy of the land surface in order to protect identified resource values. Lessees may develop the oil and gas or geothermal resources under the area restricted by this stipulation through the use of directional drilling from sites outside the no surface occupancy area.

**non-denning season** The time period when grizzly bears typically are not hibernating:

- West side of the Continental Divide: from 1 April through 30 November.
- East side of the Continental Divide: from 16 April through 30 November.

**Northern Continental Divide Ecosystem** A region identified in the Grizzly Bear Conservation Strategy encompassing about 27.3 million acres of land in western and central Montana that is one of five areas in the lower 48 states where grizzly bear populations occur.

**Northern Continental Divide Ecosystem (NCDE) Coordinating Committee** An interagency group that evaluates implementation of the NCDE Grizzly Bear Conservation Strategy, promotes the exchange of data and information about the NCDE grizzly bear population among agencies and the public, and makes recommendations to the management agencies regarding implementation of the strategy. Members of the interagency group may include Montana Fish, Wildlife & Parks; U.S. Fish & Wildlife Service; U.S. National Park Service; U.S. Forest Service; U.S. APHIS Wildlife Services; U.S. Geological Survey; U.S. Bureau of Land Management; the Blackfoot Tribe; and the Confederated Salish and Kootenai Tribes.

**open motorized route density** A moving window analysis calculation that applies to the primary conservation area portion of the NCDE and includes Federal, State, and tribal roads and motorized trails that are open to wheeled motor vehicle use by the public for any part of the non-denning season. *Note:* Motorized routes closed only by sign or order are considered to be open for purposes of this calculation. See also **moving window analysis**.

**primary conservation area** An area identified in the NCDE Grizzly Bear Conservation Strategy to be managed as a source area for the grizzly bear population where continuous occupancy by grizzly bears would be maintained. Habitat within the primary conservation area would receive the most stringent protection. The primary conservation area is the same area as the NCDE grizzly bear recovery zone identified in the Grizzly Bear Recovery Plan (USFWS, 1993<sup>2</sup>).

**project** An organized effort to achieve an outcome on NFS lands identified by location, tasks, outputs, effects, times, and responsibilities for execution (36 CFR § 219.19).

**project (in grizzly bear habitat in the NCDE)** For purposes of the motorized access standards and guidelines in the primary conservation area of the NCDE, refers to any temporary activity requiring construction of new roads, temporary roads, reconstruction or opening of restricted roads during the non-denning season, if such use exceeds administrative use levels (see **administrative use**). Activities involving recurring helicopter use (see **recurring helicopter use**) are also considered to be a project.

**recurring helicopter use** A type of helicopter flight that involves multiple trips/passes each day consisting of low-altitude (< 500 meters above-ground-level) flights that continues for a duration longer than 48 consecutive hours.

**road** A motor vehicle route more than 50 inches wide, unless identified and managed as a trail (36 CFR 212.1, Forest Service Manual 7705):

decommissioned: An unneeded road that has been stabilized and restored to a more natural state (36 CFR § 212.1). Decommissioned roads do not count towards total motorized route density as long as they meet the definition of impassable.

forest road or trail: A route wholly or partly within or adjacent to and serving National Forest System lands that is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources (36 CFR § 212.1 – Definitions).

impassable: A road that has been treated in such a manner that the road is blocked and there is little resource risk if road maintenance is not performed on a regular basis (self-maintaining). These roads are not counted in the total motorized route density as long as the road (generally the first 50 to 300 feet) has been treated to make it inaccessible to wheeled motorized vehicles during the non-denning

---

<sup>2</sup> USFWS (1993), Grizzly bear recovery plan (Missoula, MT: U.S. Fish and Wildlife Service), retrieved from [https://www.fws.gov/mountain-prairie/es/species/mammals/grizzly/Grizzly\\_bear\\_recovery\\_plan.pdf](https://www.fws.gov/mountain-prairie/es/species/mammals/grizzly/Grizzly_bear_recovery_plan.pdf), <http://www.fws.gov/mountain-prairie/species/mammals/grizzly/>.

season. Roads may become impassable due to a variety of causes, including but not limited to one or more of the following: natural vegetation growth, road entrance obliteration, scarified ground, fallen trees, boulders, or culvert or bridge removal. Impassable roads may remain on the inventoried road system if use of the road is anticipated at some point in the future. Some, but not all, roads placed in intermittent stored service may be impassable. [NCDE]

intermittent stored service/intermittent service road, closed to traffic: The road is in a condition such that there is little resource risk if maintenance is not performed.

maintenance level: The level of service provided by, and maintenance required for, a specific road, consistent with road management objectives and maintenance criteria (Forest Service Handbook 7709.59, 62.32):

Level 1: Assigned to roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and to perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage facilities and runoff patterns.

Level 2: Assigned to roads open for use by high-clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations.

Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities

Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds

Level 5: Assigned to roads that provide a high degree of user comfort and convenience.

National Forest System: A forest road other than a road that has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority (36 CFR § 212.1)

temporary: A road necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road and that is not included in a forest transportation atlas (36 CFR § 212.1). In the Northern Continental Divide Ecosystem primary conservation area, temporary roads will meet the definition of impassable when no longer needed.

**running average** A method for computing the average of a stream of numbers for a specified period. A 10-year running average computes the mean for the values in the current year plus the previous 9 years. A running average is commonly used with time series data to smooth out short-term fluctuations and highlight longer-term trends or cycles.

**secure core (grizzly bear)** An area of the NCDE primary conservation area 500 meters or more from (1) a route open to public wheeled motorized use during the grizzly bear non-denning season, (2) a gated route, or (3) a route closed only with a sign that is greater than or equal to 2,500 acres in size. Roads restricted with physical barriers (not gates), decommissioned roads, impassable roads, temporary roads, over-the-snow motorized routes/areas, and non-motorized trails are allowed within secure core, unless otherwise restricted (e.g., by other national forest plan direction).

**total motorized route density** A moving window analysis calculation that applies to the primary conservation area portion of the NCDE and includes Federal, State, and tribal roads and motorized trails that do not meet the definition of an impassable road. See also **moving window analysis**.

**zone 1** An area surrounding the grizzly bear primary conservation area in the NCDE where the intent is to maintain occupancy by grizzly bears but at expected lower densities than inside the primary conservation area. Zone 1 also includes two demographic connectivity areas (Salish and Ninemile).

**zone 2** An area adjacent to the grizzly bear zone 1 and/or zone 3 in the NCDE where grizzly bears, particularly males, would have the opportunity to move between the NCDE and adjacent ecosystems. The intent of the zone 2 area is to allow for resource management and recreational opportunities while responding to grizzly bear-human conflicts with appropriate management actions.

**zone 3** The area that primarily consists of areas where grizzly bears do not have enough suitable habitat to support population growth. Grizzly bear occupancy will not be actively discouraged in zone 3, and the management emphasis is on conflict response.



Page intentionally blank.

# Appendix J. Scenic Character Descriptions

## Table of Contents

Introduction.....	1
Big Belts Geographic Area .....	2
Castles Geographic Area.....	8
Crazies Geographic Area.....	10
Divide Geographic Area.....	12
Elkhorns Geographic Area .....	21
Highwoods Geographic Area .....	26
Little Belts Geographic Area .....	29
Rocky Mountain Range Geographic Area.....	33
Snowies Geographic Area.....	37
Upper Blackfoot Geographic Area.....	43
Literature .....	48

## Figures

Figure 1. Looking east at Mount Baldy from the Missouri River valley.....	2
Figure 2. Dry prairie, looking east towards Ellis Canyon in the Dry Range .....	4
Figure 3. Dry Range from the Lingshire Road.....	4
Figure 4. Avalanche Gulch .....	5
Figure 5. Hellgate Gulch .....	5
Figure 6. Glacial cirque on Mount Edith .....	6
Figure 7. High elevation ridge between Mount Baldy and Mount Edith .....	6
Figure 8. Meriwether Canyon in Gates of the Mountains Wilderness.....	7
Figure 9. Looking north at bluffs along a short, free-flowing section of the Missouri River between Hauser and Upper Holter Lakes.....	7
Figure 10. View of Whetstone Ridge from the south.....	8
Figure 11. View of the granite, castle-like outcrops that extend above a coniferous canopy, looking southeast towards Woodchuck Mountain .....	9

Figure 12. Granite outcrop .....	9
Figure 13. Looking towards Virginia Peak, elevation 8,769 feet .....	10
Figure 14. Patterns of vegetation on a long ridge ascending to Loco Mountain .....	11
Figure 15. Foreground view showing encroachment of Douglas-fir into sagebrush grassland .....	11
Figure 16. Chessman Reservoir from the summit of Red Mountain .....	12
Figure 17. Divide GA and subarea context map .....	13
Figure 18. Wet bog along the Continental Divide .....	14
Figure 19. Granite boulder outcrop and fall color along the Continental Divide.....	14
Figure 20. Wet forest and fall color along the Continental Divide.....	15
Figure 21. Pasture in the Little Blackfoot Valley (southwest subarea).....	16
Figure 22. The Little Blackfoot River at base flow in August (southwest subarea) .....	17
Figure 23. Aspen and granite boulders create an opening in a closed canopy of conifers (southwest subarea).....	17
Figure 24. Historic structure (northeast subarea) .....	18
Figure 25. Looking at northeast subarea from foothills of Black Mountain in the southeast subarea.....	19
Figure 26. Lime Kiln Remnants in Grizzly Gulch (southeast subarea) .....	20
Figure 27. Red Mountain from the Continental Divide (southeast subarea).....	20
Figure 28. Crow and Elkhorn Peaks from the Boulder River Valley, looking north.....	21
Figure 29. Wet meadow emanating from a spring in the drier east sedimentary geologic area .....	23
Figure 30. Eagle Guard Station .....	23
Figure 31. Looking towards Crow and Elkhorn Peaks from the southeast .....	24
Figure 32. Boulder strewn area on the western batholith side .....	24
Figure 33. Bitterroot, <i>Lewisia rediviva</i> , a seasonally conspicuous component of grasslands .....	25
Figure 34. Grassland and sagebrush indicative of east side and lower elevations .....	25
Figure 35. Looking north down Weasel Creek towards Canyon Ferry Reservoir and Big Belt Mountains ..	25
Figure 36. Looking west from ridge on Windy Mountain, view of North Peak (left) and Highwood Baldy (right).....	26
Figure 37. Lodgepole pine stand .....	27
Figure 38. Windswept limber pine .....	28
Figure 39. Aspen intergrading with grass .....	28
Figure 40. Highwood Creek .....	28
Figure 41. Pierce Park as seen from the slopes of Daisy Mountain with Big Baldy in the background .....	29

Figure 42. Limestone outcrops (foreground) and Granite Mountain (background), a gentle sloping, broad ridge of exposed rock .....	30
Figure 43. Evidence of glaciation on the east side of Big Baldy Mountain .....	31
Figure 44. A dry park on the flat top of Green Mountain .....	31
Figure 45. Smith River Canyon on the northwest boundary .....	32
Figure 46. South Fork of the Judith River .....	32
Figure 47. Looking north; west to east: North Fork of the Sun River valley, Gibson Reservoir and the Sun River.....	33
Figure 48. Looking east; Over thrust of carbonate rocks (reef) Sawtooth Range in Blackleaf Canyon.....	35
Figure 49. Looking west; Vegetative patterns (prairie, woodland, forest), Ear Mountain area .....	35
Figure 50. Looking west; Rocky Mountain Range on horizon at sundown .....	36
Figure 51. Historic handprint pictographs.....	36
Figure 52. Looking east towards a vast expanse of prairie, Clary Coulee area .....	36
Figure 53. Steep-walled, amphitheater-like basin .....	37
Figure 54. Looking west from the ridge of West Peak .....	38
Figure 55. Approaching the flat-topped range from the north.....	39
Figure 56. Limestone and wildflowers.....	39
Figure 57. Upper slopes approaching ridgeline.....	40
Figure 58. Flat-topped ridge characterized by rock and alpine.....	40
Figure 59. Fossil .....	41
Figure 60. Ridge top.....	41
Figure 61. The Upper Blackfoot River.....	43
Figure 62. Beargrass blooms under a conifer canopy at Flesher Pass .....	45
Figure 63. Looking north into the Scapegoat Wilderness from the slopes of Red Mountain.....	45
Figure 64. Red Mountain.....	46
Figure 65. Large ponderosa pine .....	46
Figure 66. Looking north between Black and Nevada Mountains .....	46
Figure 67. Looking west near Granite Butte.....	47
Figure 68. Looking northwest near Snowbank Creek in a burned area .....	47

Page intentionally left blank.

## Introduction

The plan area covers a broad variety of ecological regions. This area is further divided into a series of distinctive “island” mountain ranges. These individual mountain ranges were identified and labeled as GAs.

Scenery is important to visitors overall experience when visiting the Forest. Research has shown (Ryan 2005) that people prefer natural settings when visiting public lands. Statistics from the National Visitor Use Monitoring (NVUM) project show that the second highest activity visitors participate in nationally is viewing scenery, with 25 percent of visitors participating in this activity. This high percentage emphasizes the importance of maintaining natural appearing landscapes so the expectations of these visitors can be met.

### *Scenic Character*

Scenic character is defined as a combination of the physical, biological, and cultural images that give an area its scenic identity and contribute to its sense of place. It provides a frame of reference from which to determine the scenic attractiveness of a landscape and to measure changes to the scenic integrity of the scenery described. Scenic character for the plan area was assessed by individual GAs and includes the encompassing view sheds of both NFS forested and nonforested lands. Ecoregion descriptions describe the biophysical aspects of the scenic character of the forest landscape. These ecoregion descriptions served as the frame of reference for assessing scenic character and the scenery attributes within these landscapes.

The Scenery Management System is a systematic approach to inventory, analyze, and monitor the scenic resources. This system recognizes natural disturbance processes such as fire, insects, and disease to be part of the natural landscape that is dynamic and also important in maintaining healthy, sustainable, and scenic landscapes. The primary components of the Scenery Management System are: scenic character, scenic attractiveness, landscape visibility, existing scenic integrity, and scenic classes. This system for managing scenery is used in the context of ecosystem management to determine the relative value, stability, resiliency and importance of scenery; assist in establishing overall resource objectives; and ensure high-quality scenery for future generations.

The scenic character for each individual GA is described below. Maps of the desired scenic integrity objectives for each GA can be found in appendix B.

## Big Belts Geographic Area



**Figure 1. Looking east at Mount Baldy from the Missouri River valley**

### *Location*

The Big Belt Mountains are an island range primarily in Broadwater, Lewis and Clark, and Meagher Counties with small portions in Gallatin and Cascade Counties. This includes the Gates of the Mountains Wilderness, the outlying Dry Range, and the small communities of York and Nelson. The nearest population center is Helena. Many other smaller communities also have intimate relationships with the GA such as Lakeside, Canyon Ferry, Townsend, Toston, and White Sulphur Springs. The range is located between the predominantly treeless Smith and Missouri river valleys.

### *Scenic Character*

The Big Belts GA has a rich history of occupation beginning with prehistoric peoples. Many cliff faces and rock shelters bear their signature in the form of pictographs and petroglyphs. Artifacts such as projectile points and associated flakes are commonly encountered. The Flathead Trail, a historic travel corridor, traverses the southern Big Belt Mountains.

The presence of valuable minerals has endowed the Big Belts with a robust mining history. Relics of historic mining infrastructure and tools are frequent. Many small communities have come and gone, such as Whites City, Diamond City, Watson, Vista, Manger, Duck Creek, Blackwell, Cement Gulch City, and Trout Creek. Many of their structures have long disappeared but remnants still exist on the landscape.



Thompson Guard Station and Meriwether Guard Station stand as reminders of the US Forest Service history.

The Mann Gulch Smokejumper Memorial commemorates the tragedy of the Mann Gulch Fire, a sacred landscape for wildland firefighters. Many make pilgrimages here to pay their respects, strengthen internal relationships, and revisit lessons learned.

The Big Belt Mountains make up a long arc, approximately 75 miles long, on a northwest to southeast axis. Proportionally, it is narrow west to east, bulging wider in the north. The Missouri River clips the northwest boundary. This section of the river was named the Gates of the Mountains by the Lewis and Clark expedition because here the river is constricted through tall, picturesque limestone cliffs. An area of canyons adjacent to this stretch of river shares similar geology and has been designated wilderness. The tallest mountains are found in the south central part of the range, Mount Baldy at 9,472 and Mount Edith 9,507, just north of Deep Creek River Canyon. The lowest elevations are along the Missouri River and are around 3,600 feet. Many other mountains are also landmarks, such as Cap, Willow, Hogback, Hedges, and Grassy. Slopes are typically steep and rugged. Some of the highest elevations have evidence of localized glaciation, such as the cirque on Mount Edith.

The mountains are characterized by many steep sided gulches and canyons that drain the mountains to the west, with over 140 named. A few are very narrow at the entrance to the mountains and then open up into broader bottoms once within, such as Hellgate, Little Hellgate, and Avalanche gulches. Other prominent gulches are Magpie, Cave, White, Confederate, Duck Creek, Cabin, and Dry Creek. Another prominent local landform feature is the bar, which is a deposition of material by a stream body over time. It is similar to a sand bar or point bar in a stream, but on a larger scale. Many have been productive sources for valuable minerals for placer miners.

The Dry Range is a distinct geologic unit to the east of the Big Belt Mountains and is included in the Big Belts GA because of its close proximity. This landform can be described as foothills to low mountains with elevations ranging between 4500-6500 feet. Ellis Canyon is a prominent, branching drainage network that runs south to north through the range.

The geology of this GA is predominantly sedimentary limestone. There are some pockets of rock from metamorphic and volcanic activity in the Big Belt Mountains that are rich with minerals.

Most of the outlying Dry Range, northeast Big Belts, and area of the Big Belts along the Missouri River can be characterized as partially forested foothills with large grassland openings. The area of the Dry Range that borders the Smith River is more heavily forested.

The forest in the Big Belt Mountains is predominantly Douglas-fir and ponderosa pine at lower elevations, with subalpine fir at higher elevations. Whitebark pine is also encountered at higher elevations. Valley bottoms alongside drainages have narrow riparian areas with dogwood, willow, patches of cottonwood and other wet-loving plants. South and southwest aspects grow dry grassland. Fire is the primary sculptor of plant communities and occurs frequently. The majority of the Gates of the Mountains Wilderness burned in 2007 and the famous Mann Gulch fire, in the same vicinity, burned in 1949.

Both the Big Belts and the Dry Range lack much water and are characteristically dry. They are in the rain shadow of the continental divide to the west. The underlying geology is porous and many of the streams are intermittent. Most of the west-facing gulches and canyons have small constrained streams associated with them, such as Beaver Creek, Trout Creek, and Deep Creek. High elevation lakes are in basins east of Mount Baldy and Boulder Baldy. Discharge from these lakes flows east into the Smith River via Camas

and Big Birch Creek. Rock Creek also flows into the Smith and connects with Ellis Canyon in the Dry Range. Gipsy Lake, a manmade reservoir, is also on the east side.



**Figure 2. Dry prairie, looking east towards Ellis Canyon in the Dry Range**



**Figure 3. Dry Range from the Lingshire Road**



**Figure 4. Avalanche Gulch**



**Figure 5. Hellgate Gulch**





**Figure 6. Glacial cirque on Mount Edith**



**Figure 7. High elevation ridge between Mount Baldy and Mount Edith**



**Figure 8. Meriwether Canyon in Gates of the Mountains Wilderness**



**Figure 9. Looking north at bluffs along a short, free-flowing section of the Missouri River between Hauser and Upper Holter Lakes**



## Castles Geographic Area



**Figure 10. View of Whetstone Ridge from the south**

### *Location*

The Castles GA is an island mountain range east of White Sulphur Springs in Meagher County. The Castle's treed higher elevations are surrounded by lower elevations that are predominantly treeless, instilling an island appearance. The range has its own geologic story- unique from the other island ranges.

### *Scenic Character*

This GA has a long history of occupation. Its mineral deposits were used as quarries for first people's needs such as projectile points and scrapers. They left behind cultural artifacts, many of which lay undisturbed. Euro-American settlement began with the discovery of some of the same mineral deposits, causing it to be one of the first areas in Montana to be settled. The small towns of Lennep and Checkerboard are remnants of this era, as are the ghost towns of Castletown and Blackhawk. Some remnants of their structures can still be found.

The Castles are a combination of landforms that appear as one. Western slopes culminate in a gentle rising, flat-topped dome of volcanic origin that is comprised of a group of mountains, of which the forested slopes of Beartrap Peak, Woodchuck Mountain, and Willow Peak are punctuated by castle-like outcrops of granite. Elk Peak is the highest point in the GA at 8,566 feet. Wapiti and Castle mountains are also prominent features. The eastern section is characterized by plateaus of sedimentary origin, such as the Limestone and Whetstone Ridges. Here, the lowest elevations are down to 5,100. Vantages throughout the GA provide impressive views of the Little Belts to the north, the Crazies to the south, the Big Belts to the west, the Bridgers to the southwest, and a vast expanse of prairie to the east.

North and northwestern aspects are cloaked with a dense canopy of conifers. At higher elevations and on sun exposed aspects, forest intergrades with grassland meadows, or *parks* such as Manger Park, Smith Meadows, and Elk Park. Aspen stands grow in moist areas. On the drier, eastern sections, plant communities are dominated by grassy parks interspersed with patches of Douglas-fir, Engelmann spruce, lodgepole, limber, and, ponderosa pine. The entire GA is surrounded by sagebrush grasslands. Historically, fire was the primary shaper of plant communities.

The Castles GA is surrounded in the lower grassland elevations by the North and South Forks of the Smith River on the west and the North and South Forks of the Musselshell River on the east. Many spring fed streams drain from the mountains into these forks, some cutting deep gorges and some sinking underground. Major drainages are Warm Springs, Checkerboard, Flagstaff, Beartrap, Fourmile, Richardson, Grasshopper, Bonanza, and Cottonwood creeks. Willow Creek is the municipal water source for White Sulphur Springs. The western slopes are wetter than the porous eastern limestone slopes.



**Figure 11. View of the granite, castle-like outcrops that extend above a coniferous canopy, looking southeast towards Woodchuck Mountain**



**Figure 12. Granite outcrop**



## Crazies Geographic Area



**Figure 13. Looking towards Virginia Peak, elevation 8,769 feet**

### *Location*

The Crazies GA encompasses the northern portion of the Crazy Mountains that is administered by the HLC NF. The southern portion is administered by the Gallatin National Forest. The GA is at the junction of Meagher, Wheatland, Sweet Grass, and Park Counties. White Sulphur Springs is the nearest population center with an estimated 970 inhabitants (United States Census Bureau 2013).

### *Scenic Character*

The Crazy Mountains make up an island range that abruptly rises from the surrounding Shield, Musselshell, and Yellowstone River valleys. The rugged and awe-inspiring range has captivated people over time. The Mountain Crow visited its tall peaks and special areas for vision quests. Chief Many Coups had one of his most prophetic dreams here. Euro- American settlement has lightly affected the area with only a few signs of habitation, such as the Hereim Homestead on Comb Creek. Forest Lake Guard Station still stands as a sentry for Forest Service administration. Today, people still seek spiritual experiences through various recreational and other means.

This island range is a discrete geologic unit, unique from the adjacent ranges (Castles, Little Belts, Snowies, Beartooths, Absarokas, and Gallatins). The form of the Crazies is bold and craggy. They are of volcanic origin and enriched with granitic geology. Talus, scree, and boulder areas dot steep and moderate slopes. Broad valleys and long finger ridges radiate outward from its center. Many ridge tops and summits lack vegetation residing in the alpine area. Glaciation has imparted many of these landforms with sharp, scoured edges. The highest point in the GA is Loco Mountain at 9,242 feet. The summits of Target Rock,

Virginia Peak, Mt Elmo, and Lebo Peak are also distinctive landmarks. Lower elevations along stream bottoms are at roughly 6,100 feet.

All of the GAs streams drain into the Musselshell River on their way to the Gulf of Mexico via the Missouri River. The most prominent drainages are the American, Bozeman, Musselshell Forks, Cottonwood, and Little and Big Elk Creeks. Riparian forests of aspen, willow, dogwood and cottonwood grow along their courses. Grasslands occupy much of the lower elevations and intergrade with coniferous forest at higher elevations. Small patches of deciduous trees punctuate the dense canopy of evergreen trees. At the highest elevations, conifer forests give way to alpine habitats. Historically, fire would have been a major influence on plant communities.



**Figure 14. Patterns of vegetation on a long ridge ascending to Loco Mountain**



**Figure 15. Foreground view showing encroachment of Douglas-fir into sagebrush grassland**

## Divide Geographic Area



**Figure 16. Chessman Reservoir from the summit of Red Mountain**

### *Location*

This GA is the scenic backdrop and primary recreational resource for Montana’s capital city, Helena, with a population of 29,596 (United States Census Bureau 2013). It also includes the smaller communities of Austin, Rimini, and Unionville. Portions of the GA are in the political geographies of Lewis and Clark, Powell, and Jefferson Counties. For ease of comprehension, the area has been broken out into four smaller subareas: northwest, southwest, northeast, and southeast. U.S. Highway 12 divides the subareas south to north and the Continental Divide separates them east to west. The spine of the divide is higher, cooler, wetter, and more exposed, imbuing it with a unique microclimate. The Continental Divide National Scenic Trail follows the crest of the divide.

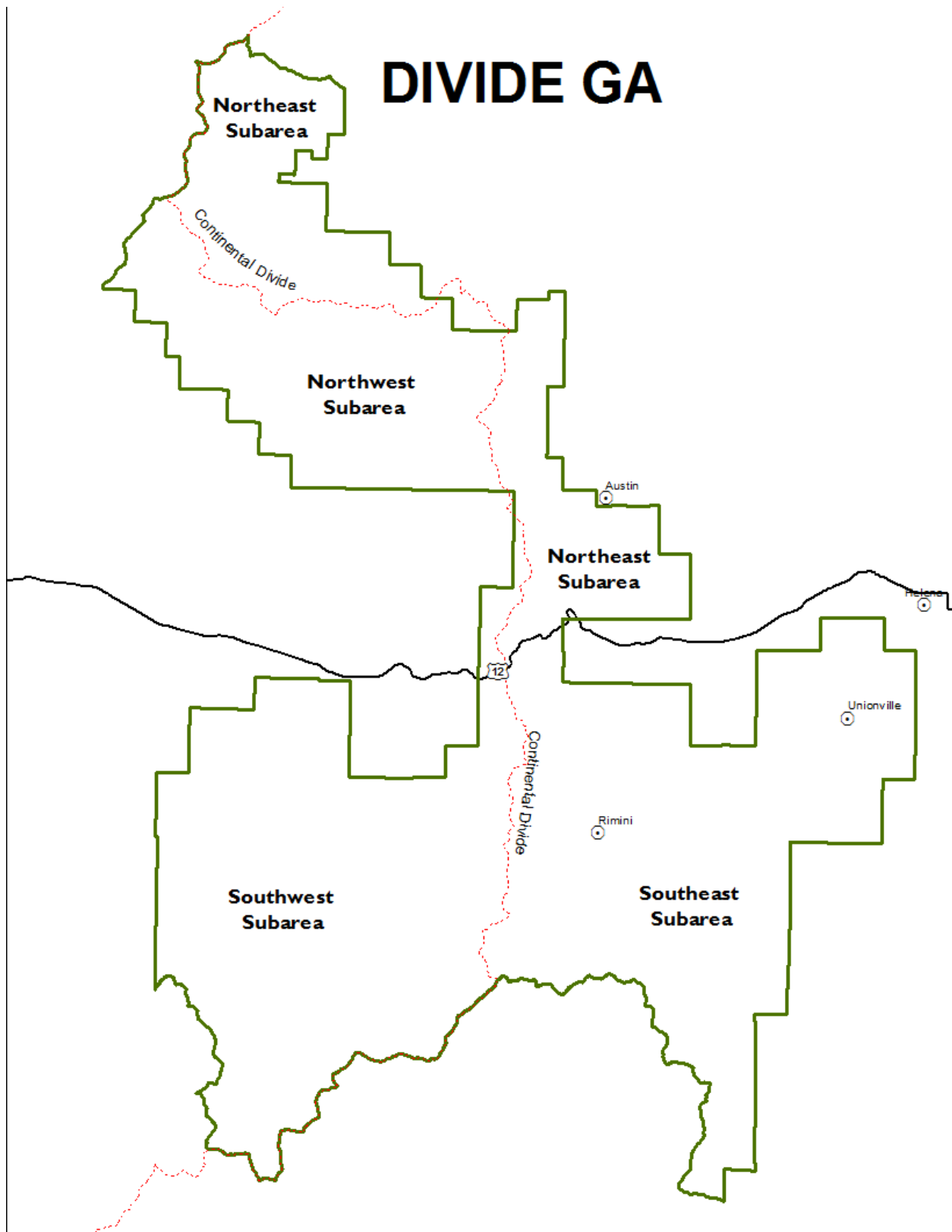


Figure 17. Divide GA and subarea context map





**Figure 18. Wet bog along the Continental Divide**



**Figure 19. Granite boulder outcrop and fall color along the Continental Divide**





**Figure 20. Wet forest and fall color along the Continental Divide**

### *Scenic Character*

While the GA has a rich history of prehistoric occupation, its signature on the landscape is not obvious. A legacy of mining has left behind a suite of structures such as cabins and kilns, and over 139 named mines. Many former mining communities were settled and have since vacated, leaving behind clues of their heyday. Some riparian benches have been converted to pasture on private property, adding a rural setting in areas. A major west/ east railroad passes over the divide at Mullan Pass. Historically, fire was the primary disturbance throughout the GA and would determine composition and patterns of vegetation. Parks are distributed throughout, such as Bullion Parks, Blackfoot Meadows, and Thompson Flats.

### **Divide Northwest**

This subarea is a combination of ecoregions and displays a diversity of characteristics. Mountains are mostly nonglaciaded and therefore rounded in form, lacking jagged edges. Most ridges and peaks are heavily forested, obscuring high points. This subarea's highest peak is Black Mountain at 8,297 feet. Lower elevations go down to roughly 5,500 feet. Its geology is mainly composed of carbonate rich sedimentary rock.

Forests are characterized by Douglas-fir and ponderosa pine. Open grasslands occupy south and southwesterly aspects, especially at sun-exposed elevations. The ecoregion to the west is predominantly devoid of trees, creating a stark contrast. Water is scarce here with only small drainages, Dog Creek being the largest.

### **Divide Southwest**

This subarea is exclusively in the Elkhorn Mountain-Boulder Batholith ecoregion. The landform is partially glaciaded so there is some evidence of glacial activity (terrain features and soil). The geology is of

volcanic origin and rich in mineral deposits. Locally, boulder strewn areas of erosion-prone, granitic rocks occur. The highest point is Jack Mountain at 8,727 feet. Lower elevations are approximately 5,350 feet.

Landforms are heavily covered in forests of subalpine fir and Douglas-fir habitat types, mostly dominated by seral lodgepole at higher elevations. Talus slopes create openings in the closed canopy of coniferous trees. The most prominent drainage, the Little Blackfoot River, is the largest in the entire GA. It has carved a broad valley bottom and is buffered by robust willow complexes.



**Figure 21. Pasture in the Little Blackfoot Valley (southwest subarea)**





**Figure 22. The Little Blackfoot River at base flow in August (southwest subarea)**



**Figure 23. Aspen and granite boulders create an opening in a closed canopy of conifers (southwest subarea)**

## Divide Northeast

This subarea is a combination of ecoregions and therefore shares attributes of all. Mountains have a rolling form and are heavily forested with grassy openings on sun-exposed ridgelines. Ponderosa pine and Douglas-fir are the dominant tree species. A mostly treeless ecoregion extends directly to the subarea's east, creating contrast.

The geology is composed of rocks of both volcanic and sedimentary origin. Highest points are along the Continental Divide, Meyer's Hill at 7,129 feet and Roundtop Mountain at 6,916 feet. The lowest elevations are roughly 5,160 feet. Water is scarce, and streams are infrequent. Little Prickly Pear Creek's headwaters and canyon begin here.



**Figure 24. Historic structure (northeast subarea)**





**Figure 25. Looking at northeast subarea from foothills of Black Mountain in the southeast subarea**

## Divide Southeast

Divide southeast is a combination of ecoregions and characteristics. It is also the closest subarea to the population center of Helena and therefore most visited. Mountains are rolling and rounded with little evidence of glaciation. The geology is diverse with mineral rich deposits of volcanic origin and sedimentary rocks. Patches of granite boulders and talus slopes are intermittent.

Thick forests of subalpine fir and Douglas-fir climax habitat types, most of which are dominated by seral lodgepole pine, cloak higher elevations. An exception to this is the iconic Red Mountain, at 8,143 feet; its upper slopes are conspicuously barren, exposing red, rocky soil. A stunted forest of wind-swept whitebark pine clings to its round, flat ridge top. Forests are punctuated by wet, boggy habitat, such as Sure Thing Swamp, which harbors unique communities of wet-loving vegetation. Aspen stands are distributed throughout and give contrast to the expanses of conifers. Lower elevations, down to roughly 4,500 feet, have ponderosa pine that intergrade into grassland, mainly on south and southwesterly ridges.

Overall water is scarce, but Helena's primary water source, Tenmile Creek, is found here. Some waterways have been impounded to capture water for utility and recreation, such as Chessman Reservoir and Park Lake. Drainages are characterized as being heavily incised with constrained riparian areas such as Lump Gulch and Orofino Gulch. Some gulches have remnants of historic mining, such as kilns, that recall an era of fine craftsmanship.



**Figure 26. Lime Kiln Remnants in Grizzly Gulch (southeast subarea)**



**Figure 27. Red Mountain from the Continental Divide (southeast subarea)**



## Elkhorns Geographic Area



**Figure 28. Crow and Elkhorn Peaks from the Boulder River Valley, looking north**

### *Location*

The Elkhorns GA encompasses the Elkhorn Mountains in Broadwater and Jefferson Counties and includes the small mining town of Elkhorn. The nearest population center is Helena, Montana. Many smaller communities also have intimate relationships with the GA: Montana City, Clancy, Alhambra, Jefferson City, Boulder, Radersburg, Townsend, Winston, and East Helena. The Elkhorns are surrounded by the Divide Mountains and Boulder Batholith on the west, and the Missouri and Boulder River valleys on the north, east, and south. Many other island ranges and Canyon Ferry Reservoir can be viewed from its vantages.

## *Scenic Character*

The Elkhorn GA has been occupied by human inhabitants for thousands of years. Rock art and other subtle clues of their settlement can still be found on the landscape. However, prehistoric occupation is less evident than the more recent Euro-American settlement. After the discovery of valuable mineral deposits, mines and associated settlements sprang up in portions of the GA. The ghost town of Elkhorn is a good example of this era. Other communities have all but disappeared, such as Queen, Eagle City, Gold Dust, and Sourdough. Remnant tools and infrastructure of the mining era are found throughout the GA. Eagle and Tizer Guard stations are living reminders of Forest Service administration. Fire has historically has been a major influence to plant communities.

The form of the Elkhorn Mountains is rounded and furrowed from extensive weathering. From a bird's-eye view, the island range is oval shaped on a southwest-northeast axis. High points are prominent from background northwest, west, and southwest perspectives but cryptic from other vantages. Drainages have carved steep gulches and canyons.

The Elkhorn Mountains can be divided into west and east sections by the predominant underlying geology. The majority of the Elkhorns (north, west, southwest) is a part of a batholith, an igneous bulge that formed when magma upwelled from deep within the earth's crust and then cooled. This geologic history has left the area rich in minerals. Evidence of glaciation is localized as boulder strewn areas of granitic rocks. The GA's highest points are Crow Peak at 9,415 feet and Elkhorn Peak at 9,410 feet. Other prominent landmarks are High Peak, Casey Peak, and Strawberry Butte. The lowest elevations in the GA are roughly 4,500 feet in the northwest corner. The remaining approximate quarter (southwest) of the GA is underlain by sedimentary rock that lacks the same mineralization as the batholith but is rich in calcareous rock. The landforms are rugged, low mountains with hogback ridges and dry valleys. Prominent landforms are Glendale Butte and Giant Hill.

The plant communities on the batholith portion are mostly forested with ponderosa pine, subalpine fir, Douglas-fir, lodgepole pine, and whitebark pine at higher elevations. Aspen stands and water-loving plants take advantage of riparian areas and wet seeps. Parks, rich with grasses and forbs, are frequent at lower elevations and break up the forest in montane elevations. A large expanse of this GA burned in 1988. Its effects are still evident. The sedimentary geologic area in the east is a gradient of foothill prairie and partially forested low mountains. Grassland is a major component. Limber pine and juniper woodland ebb and flow with the prairie relative to disturbances. Douglas-fir is the predominant forest tree species.

The western side of the GA is generally wetter than the eastern side. The entire landmass is drained by many perennial and intermittent creeks. All flow to the Missouri River, some via the Boulder and Jefferson Rivers, such as Elkhorn and Dry Creeks. Other major creeks are McClellan, Prickly Pear, Warm Springs, Crow Indian, and Beaver. The basins around Elkhorn and Crow Peaks harbor high elevation lakes such as Hidden Lake, Tizer Lakes, Leslie Lake, and Glenwood Lake. The Crow Lakes are found in the upper headwaters of Crow Creek. Crow Creek plummets over an impressive falls. Springs are important water features in the more arid eastern sections.



**Figure 29. Wet meadow emanating from a spring in the drier east sedimentary geologic area**



**Figure 30. Eagle Guard Station**





**Figure 31. Looking towards Crow and Elkhorn Peaks from the southeast**



**Figure 32. Boulder strewn area on the western batholith side**



**Figure 33. Bitterroot, *Lewisia rediviva*, a seasonally conspicuous component of grasslands**



**Figure 34. Grassland and sagebrush indicative of east side and lower elevations**



**Figure 35. Looking north down Weasel Creek towards Canyon Ferry Reservoir and Big Belt Mountains**



## Highwoods Geographic Area



**Figure 36. Looking west from ridge on Windy Mountain, view of North Peak (left) and Highwood Baldy (right)**

### *Location*

The Highwoods GA is the smallest of all the GAs within the plan area and encompasses the Highwood Mountains. This isolated island range is located within Cascade, Chouteau, and Judith Basin Counties. This GA is the closest NFS land to Great Falls, population, 59,351 (United States Census Bureau 2013). The landmass rises up from the confluence of multiple grassland types: foothill grasslands, semi-arid prairie, Missouri Breaks, and unglaciated high plains. All of these types share basic common traits but are slightly different and collectively set the stage for the Highwood's unique setting.

### *Scenic Character*

The Highwoods have a long history of grazing. This GA provides an abundance of grass and reliable sources of water. Historic Highwood and Shonkin Cow Camps are reminders of this heritage. Highwood Guard Station continues to greet visitors as they enter the forest at the North Fork of Highwood Creek.

Although small, the GA is diverse and robust in content. The mountain range is of volcanic origin and contains geologic formations that are a mix of igneous and sedimentary rocks. The mountains have been weathered over time by natural processes, rendering them rolling and furrowed in form. The high point and centerpiece of the range is Highwood Baldy at 7,657 feet. The mountains are bisected by Highwood Creek. Highwood Baldy, Pinewood, North, South and Middle Peaks are found to its west. Mount Kennon, Windy Mountain, East, Lava, Prospect, and Arrow Peaks are located to its east. Slopes are moderately steep.

North facing aspects are considerably wetter than less vegetated and rocky south facing aspects. Lowest elevations go down to 4300 feet.

Here, a characterizing landform is the coulee, which is from the French word meaning “to flow”. It is used interchangeably for various terrain features but all have a drainage element in common. Some are predominantly grassy and others harbor woody plants. Some are intermittent and others have perennial flows. Some examples in the Highwood GA are Grouse and Big Coulees.

A dense stream network has dissected the mountains, creating numerous folds in the topography. The most prominent drainages are Arrow, Shonkin, Highwood, and the North Fork of Little Belt Creeks. Riparian areas are rich with willow, dogwood, water birch, cottonwood, and other water-loving plants. Some headwaters provide for pure and geographically unique populations of westslope cutthroat trout.

The land cover of this GA is a mosaic of conifers, deciduous trees, grass, and rock. Large aspen stands intergrade with rich prairie and dense pine forest. Orderly stands of mature lodgepole pine contrast with more diverse plant assemblages. Open grown Douglas-fir and windswept limber pines add to the diverse character. Woodland, forest, and prairie ebb and flow into one another. Fire was historically the main determinant of vegetative cover.



**Figure 37. Lodgepole pine stand**





**Figure 38. Windswept limber pine**



**Figure 39. Aspen intergrading with grass**



**Figure 40. Highwood Creek**

## Little Belts Geographic Area



**Figure 41. Pierce Park as seen from the slopes of Daisy Mountain with Big Baldy in the background**  
(credit: Steve Wyatt)

### *Location*

Portions of this sprawling range are located in the political geographies of Meagher, Judith Basin, Cascade, and Wheatland Counties. It is surrounded by predominantly treeless foothills of prairie and sagebrush steppe. The city of Great Falls is 50 miles to its northwest and the town of White Sulphur Springs is on its southern edge. The Little Belts GA is bisected north-south by the Kings Hill scenic byway (US Highway 89) along which the small communities of Niehart and Monarch reside. Most of the Little Belts can be described as remote but accessible by a well-distributed transportation network.

### *Scenic Character*

First peoples used the area ever since immigrating into this part of North America. They utilized quarries for tools and weapons, such as projectile points. They created art on rock shelters and overhangs for cultural reasons. They left rings of rock used to secure tepees for shelter. Their signature is light on the land but can still be found.

The Little Belts GA was quickly inhabited by Euro-Americans after Missouri river travel was established and rich deposits of minerals were discovered. Approximately 144 named mines have been constructed within the area. Mining infrastructure and tools are frequently encountered throughout. Many communities also sprang up quickly and then disappeared. Some remnants of civic buildings and dwellings stand witnesses to their story. A few former community names are Galena, Summit, Silver Dyke, Carbonate, and Hughesville. Homesteading also occurred in the GA, mostly along the lower elevation fringes. A history of timber cutting is evident and relics such as splash dams and log chutes can be encountered. Forest Service guard stations and fire lookouts remain in various locations and conditions.

This is Charlie Russell country. The cowboy artist lived at times in these mountains and worked the neighboring ranches. Many spots were visited by him and became inspirations for his art. It is not uncommon for local families to recall first-hand accounts of the charismatic man.



The adjective “little” to describe this GA is misleading, as this range is the largest of the isolated island ranges in central Montana. It measures approximately 60 miles southeast to northeast and is 30 miles across. The landmass of the Little Belts Mountains generally has a rolling curvature that lacks much sharpness. Evidence of glaciation is infrequent and patchy, such as on the upper slopes of Big Baldy Mountain. The mountain range’s form and its fairly uniform cover of trees create geographic confusion. Visitors seldom realize the range’s immensity and spectrum of elevation. The highest points are Big Baldy at 9,175 feet and Yogo Peak at 8,812 feet. Elevations range as low as 4,000, in the Smith River Canyon. A few other prominent landmarks are Kings Hill pass, with nearby Porphyry Peak and Showdown ski area, Old Baldy Mountain, Black Butte, Monument Ridge and Peak, Wolf Butte, Granite Mountain, Peterson Mountain, Bandbox Mountain, Sand Point Mountain, Mount High, Lost Fork Ridge, Smoky Mountain, Daisy Peak, and Coxcombe Butte.

The geology of the Little Belts is rich in limestone with pockets of metamorphic and igneous rock. Bands of limestone bluffs break up uniform expanses of evergreen forest. Stream courses have carved beautiful exposed escarpments and palisades, such as on the Smith River, Tenderfoot Creek, Belt Creek, Haymaker Narrows Creek, Antelope Creek, and the Middle Fork of the Judith River.

The many streams of the Little Belts are picturesque and ecologically rich. Drainages typically flow outward, radially from the center of the range. Those in the west drain to the Smith River, such as the North Fork of the Smith, Newlan Creek, Sheep Creek, and Ming Coulee. Those to the south and southeast drain into the Musselshell River, such as the North Fork of the Musselshell, Haymaker Creek, both forks of Hopley Creek, and Roberts Creek. Those to the east drain to the Judith River, such as Lone Tree Creek, Willow Creek, Dry Wolf Creek, Running Wolf Creek, Surprise Creek, and Sage Creek. Those to the north drain into the Missouri, such as Sand Coulee Creek, Belt Creek, and Big Otter Creek.

The Little Belt’s vegetation reflects the gradient of moisture and elevation. Grasslands, sagebrush steppe and open woodland circle the outer fringes with trees clinging to drainage bottoms. Ponderosa pine stands are more common on the drier east side. Thick stands of Douglas-fir and lodgepole pine cloak the interior. Whitebark pine and subalpine fir are found in the higher elevations. Engelmann spruce and aspen occupy wet sites. Some mountain summits lack vegetation, revealing gentle sloping, broad ridges that appear to be composed of mostly dark loose rock. The GA is also characterized by its many parks that punctuate the forests. They are rich assemblages of predominantly herbaceous plants. Onion, Harley, O’Brien, Pierce, and Lucy parks are a select few.



**Figure 42. Limestone outcrops (foreground) and Granite Mountain (background), a gentle sloping, broad ridge of exposed rock**



**Figure 43. Evidence of glaciation on the east side of Big Baldy Mountain**



**Figure 44. A dry park on the flat top of Green Mountain**





**Figure 45. Smith River Canyon on the northwest boundary**  
(credit: Lewis and Clark NF Little Belt Mountains Gallery Flickr.com)



**Figure 46. South Fork of the Judith River**  
(credit: Lewis and Clark NF Little Belt Mountains Gallery Flickr.com)

## Rocky Mountain Range Geographic Area



**Figure 47. Looking north; west to east: North Fork of the Sun River valley, Gibson Reservoir and the Sun River**  
(wikipedia.com)

### *Location*

The Rocky Mountain Range GA is located in portions of Teton, Pondera, Glacier, and Lewis and Clark Counties. The closest communities are Augusta, Choteau, Bynum, Dupuyer, and Heart Butte. Great Falls is the nearest population center, about an hour drive to the southeast. The GA is bordered by U.S. Highway 2 and Glacier National Park to the north. The Blackfeet Nation lands are to the northeast. The east and southeast are bordered by state, private, and BLM lands. The Upper Blackfoot GA is to the south. The continental divide and Flathead National Forest are to the west. A large portion of the Rocky Mountain Range GA is designated wilderness and includes parts of the Scapegoat and Bob Marshall Wilderness Areas. These two wilderness areas are components of a greater wilderness complex that totals over 1.5 million acres, the 5<sup>th</sup> largest wilderness area in the lower 48 states. The GA's proximity to this wilderness complex, Glacier National Park, and adjacent wild areas of Canada make it a critical component of the North Continental Divide Ecosystem.

### *Scenic Character*

This GA is a part of the larger Rocky Mountain front, which is the abrupt geologic uplift of the first range on the eastern edge of the Rocky Mountains. It is an area of stark contrast- the collision of the Northwest Glaciated Plains and the Canadian Rockies ecoregions, where the prairie meets the mountains.



The Northwest Glaciated Plains are characterized by large open expanses of what was historically short grass prairie. It has been predominantly converted to wheat and barley production or ranchland. Limber pine, woodland, and prairie occupy rocky and hilly areas that have not already been converted to agriculture. Kettle ponds seasonally dot the rolling foothills.

Here, the Canadian Rockies are represented by the Sawtooth and Lewis & Clark Ranges. The Sawtooth Range is the eastern edge that abuts the prairie. Large bands of exposed limestone are the essence of their visual character. An icon of this phenomenon is the Chinese Wall, a limestone escarpment that averages 1,000 feet high and extends for approximately 22 miles. The distinct ridges are locally known as reefs, recalling the geologic processes that created them. However, it was the mountain building processes that give them their current upthrust form. The range is the first north-south running chain of mountains in a series of parallel chains. The highest elevations are approximately in the 9,000 feet zone, a difference of over 5,000 feet from the eastward plains. The highest point in the Sawtooth Range is Rocky Mountain at 9,392 feet. The highest points in the Lewis & Clark Range inside the GA are Scapegoat Mountain at 9,202 feet and Flint Mountain at 9,079 feet (note: this mountain range spans multiple GAs).

Water drains from the mountains eastward cutting perpendicular through the parallel ridges. Roads follow stream corridors providing access to interior valleys. Many of the streams and rivers are noted for their ecological and scenic value, such as Badger Creek, Birch Creek, North and South Forks of the Sun River, Straight Creek, and the Dearborn River. While topographically constrained, their riparian areas are robust and their water is cold and clear. Upon exiting the forest boundary, the majority of water is quickly captured in reservoirs for agricultural use. Most precipitation comes in the form of snow. Fierce Chinook winds frequently create extremely windy days.

Vegetation is influenced by relatively natural processes. Recently, fire has been allowed to burn inside the wilderness areas for ecological benefits. Prairie, limber pine woodland, and aspens cover lower foothills. Prairie vegetation extends into the front ridges and gives way to western forests. Douglas-fir and lodgepole pine are the major tree species in montane areas. Engelmann spruce grow in wetter soils. Whitebark pine and subalpine fir occupy higher elevations. Much exposed rock, aspen stands, and open grassland break up forest.

The Rocky Mountain Range GA is a destination for Montanans as well as visitors from all over. People are drawn to the area because of its remoteness, stunning landscape, recreational opportunities, and because it is one of the few remaining wild places in the lower 48 states. Grizzly bears and the complete suite of native fauna, excluding free range bison, still roam here. Many intact large ranches occupy the foothill prairie to the east and function as vital parts of the GA's ecosystem. The region is a last true vestige of the American West and Old Montana. Many lodges, resorts, camps, cabins, and ranches have intimate relationships with the area. Guard stations, work centers, and lookouts help the Forest Service steward the vast country.

The GA is a distant backdrop for many locations. The inaccessibility of its western reaches dictates that the majority of visitors approach from the east through the ranches, limber pine woodland, and intact remnants of prairie. In places, it seems to undergo a magnification effect due to the mountains location on the horizon.

Portions of the Old North Trail, an ice free corridor for southward immigration of North America's first peoples, are found here. More recent indigenous cultures revere the area as a sacred landscape with religious importance such as a place for dream quests. The Badger-Two Medicine area is a Traditional Cultural District due to its cultural and spiritual resources. Archeological sites, such as pictographs, dot the entire GA.



**Figure 48. Looking east; Over thrust of carbonate rocks (reef) Sawtooth Range in Blackleaf Canyon**



**Figure 49. Looking west; Vegetative patterns (prairie, woodland, forest), Ear Mountain area**





**Figure 51. Historic handprint pictographs**



**Figure 50. Looking west; Rocky Mountain Range on horizon at sundown**



**Figure 52. Looking east towards a vast expanse of prairie, Clary Coulee area**

## Snowies Geographic Area



**Figure 53. Steep-walled, amphitheater-like basin**  
(credit: Drew Sovilla and Bailey Campbell)

### *Location*

The Snowies is the farthest east GA within the HLC NFs plan area. It is primarily in the political geography of Fergus County with smaller portions in Golden Valley County. Lewistown is the largest nearby population center, with approximately 5,900 inhabitants (United States Census Bureau 2013). The GA includes both the Big and Little Snowy Mountain ranges. Both are mountain islands in close proximity to one another but are slightly different in character. The Little Snowies are directly east of the Big Snowies. Along with the Judith and Moccasin Mountains, the Snowies are prominent changes in elevation accentuated by surrounding grassland, high plains, and foothill savanna.

### *Scenic Character*

#### **Big Snowy Mountains**

The Big Snowy Mountains have long been a unique and revered destination. Early first people visited its basins and summits for various reasons. Their artifacts and art still sporadically adorn the range. Lower slopes and foothills were homesteaded and have become large, iconic ranches. Unique, biophysical phenomena, such as ice caves, continue to attract intrepid visitors. Crystal Lake Guard station still actively facilitates Forest Service stewardship, whereas other structures are fading or completely disappeared, such as the Bercaill School and Blake Creek Forest Station.



The Big Snowies are higher in elevation and larger in size than the Little Snowies range. The spine of the dominant landform runs east-west for approximately 25 miles, and 10 miles north-south. This orientation is unique for Montana mountain ranges east of the continental divide. The lowest elevations range to approximately 5,200 feet. Middle elevations are clad with coniferous trees, with Engelmann spruce and Douglas-fir being the dominant species. At the highest elevations the forest transitions into a tree-less plateau of alpine that is characterized by rock and tundra. Slopes vary from steep rocky canyons to gentle benches. The tops of Mt Harlow, Tepee Point, and Lost Peak are connected by a flat-topped ridge that culminates with the summit of Greathouse Peak at 8,655 feet and Old Baldy at 8,678 feet, which are separated by Half Moon Pass. In sections, the ridge constricts to a narrow edge, such as Knife Blade Ridge at 8,590 feet.

Streams flowing out of the north side of the Big Snowies, such as Ross Fork Creek, Big Rock Creek, Cottonwood Creek, and the East Fork of Big Spring Creek, flow into the Judith River. Those flowing out of the south side, such as Galloway Creek, Half Moon Creek, and Merrills Spring Creek, flow into the Musselshell River. Many streams, such as Careless Creek and Swimming Woman Creek, originate in steep-walled, amphitheater-like basins and emerge out through canyons. Most of the precipitation falls during winter in the form of snow, so streams are heavily dependent on snowmelt. The climate and porous limestone imbues a dry character to the range.

Crystal Lake is one of the Big Snowies' crown jewels. It is a shallow lake of natural origin, roughly 15 feet at its deepest and underlain by a bed of limestone. The GAs karst topography conceals many caves. Floristically, the Big Snowies are unique with many vegetation types compressed into the same area. Greathouse Peak and Old Baldy Research Natural Areas are recognized exemplary examples of dry, alpine plant communities that have been shaped without glaciation but through frost patterning. Fire was the historic driver of plant communities.



**Figure 54. Looking west from the ridge of West Peak**



**Figure 55. Approaching the flat-topped range from the north**



**Figure 56. Limestone and wildflowers**  
*(credit: Drew Sovilla and Bailey Campbell)*





**Figure 57. Upper slopes approaching ridgeline**



**Figure 58. Flat-topped ridge characterized by rock and alpine**  
*(credit: Drew Sovilla and Bailey Campbell)*





**Figure 59. Fossil**  
(credit: Drew Sovilla and Bailey Campbell)



**Figure 60. Ridge top**  
(credit: Drew Sovilla and Bailey Campbell)



## Little Snowy Mountains

This smaller island range also has a rich cultural history, beginning with first peoples then homesteading. Today, large ranches maintain the open character of the area. Pine Grove Cemetery continues to be the final resting place for early Euro-American occupants.

The Little Snowies are separated from the Big Snowies by a subtle break in topography. It is entirely located in one ecoregion, which is characterized by foothills that are partially forested with mostly ponderosa pine. In general, the country is semi-arid and dominated by grassy vegetation. Landforms are rolling with slopes that are gentle to flat, except where creeks have dissected them. The area lacks prominent high points and is entirely vegetated. The highest elevation is 5,624 feet at Bold Butte.

Creeks within the Little Snowies are small and often run dry during the summer months. The major drainages are Willow Creek and the North Fork of Pole Creek, both of which drain south to the Musselshell River.

## Upper Blackfoot Geographic Area



**Figure 61. The Upper Blackfoot River**

### *Location*

The Upper Blackfoot GA spans Lewis and Clark and Powell Counties. The towns of Lincoln and Helmville are the nearest communities. The majority of the area is west of the continental divide. The Rocky Mountain Range GA and Flathead National Forest are directly north and the Divide GA is to the south. To the east, mountains become grassy foothills with isolated buttes. The city of Great Falls is approximately 70 miles away. MT Highway 200 cuts east-west through the center of the GA, crossing over Rogers Pass to follow the Blackfoot River. Missoula is approximately 70 miles to the west. The northwest corner of the GA is a part of the Scapegoat Wilderness and the greater Bob Marshall Wilderness complex. This GA is a critical component of the Southern Crown of the Continent ecosystem and greater Northern Continental Divide Ecosystem.

### *Scenic Character*

Evidence of prehistoric settlement is present on the landscape but inconspicuous. Artifacts, such as tepee rings, can be encountered but are infrequent. Culturally modified trees, such as scars on ponderosa pine from the collection of inner bark, are to be expected. Many western Montana tribes used the Blackfoot GA as a corridor as they traveled over to the plains area to the east to hunt for buffalo. Faint travois tracks, all which remain of this prehistoric trail, can still be seen in some location in the Landers Fork and Alice Creek drainages.

Euro-American settlement is more apparent but many elements are also fading to time. Portions of the Lewis and Clark Trail traverse the Blackfoot River and Alice Creek. The trail passes over the Continental Divide at Lewis and Clark Pass. Remnant buildings of former communities are in various states of disrepair, if not gone completely, such as the post offices and dwellings of McClellan Gulch, Rochester, Gould, Stemple Pass, and Mike Horse to name a few. Relics of historic mining infrastructure and tools are frequent. Two historic buildings, Webb Lake Guard Station and Granite Butte Lookout, stand testament to the Forest Service's administration. Other sites, such as Alice Creek Ranger Station, have succumbed to time.

The Blackfoot River finds its headwaters here in the GA. The highly valued recreational and scenic river clips other portions of the GA, as well. The Continental Divide National Scenic Trail transects the GA, north to south.

The GA is predominantly in two ecoregions separated by the continental divide. The first, west of the divide, is characterized by mostly rolling hills and mountains that are underlain by various types of rock. High peaks are topped with volcanic rocks with areas of exposed rock. The effects of glaciation are present, such as glacial terrain features and soil types. The second is characterized by rounded mountains that are underlain by volcanic rocks and sedimentary rocks that have changed through geologic processes. Summits lack much exposed rock. The effects of glaciation are absent. The highest point in the GA and the Lewis & Clark Range is Red Mountain at 9,411 feet. The lowest points are at approximately 4,300 feet along the Blackfoot River. Some other prominent mountains are Ogden, Dalton, Stonewall, Olson, Crater, Nevada, Greer, and Lone Mountains.

Another characterizing landform that helps define the GA is the mountain pass. There are a few notable passes, some allowing for easy automotive travel over the continental divide: Roger, Stemple, Windy, and Flesher.

Most of the area is heavily forested with conifers. Ponderosa pine and Douglas-fir are the prominent components, with subalpine fir at higher elevations. Engelmann spruce grow in wet areas. Whitebark pine occurs at high elevations. Aspen stands are intermittent. Grasslands are frequent, especially along valley bottoms and sun exposed aspects, turning from verdant green to khaki brown throughout the growing season. Wetland complexes, fens, and other groundwater dependent ecosystems harbor rich assemblages of plants, such as Indian Meadows. Western and subalpine larches are found sporadically. These species are absent in other GAs. Fire is a major driver in the structure and composition of plant communities including lodgepole pine.

This GA has many important headwater streams emanating from the high country's snow melt. Some prominent streams north of the Blackfoot River are Stonewall Creek, Arrastra Creek, Snowbank Creek, Cadotte Creek, Alice Creek, and the Landers Fork. Some prominent streams to the south of the river are Poorman Creek, Washington Creek, Hogum Creek, and Nevada Creek. All streams west of the divide feed into the Blackfoot River on its way to the Clark Fork of the Columbia River. Major drainages east of the divide, flowing towards the Missouri River, are the Middle and South Forks of the Dearborn River and Canyon Creek. Cottonwoods and other riparian species mark the stream courses. Many natural lakes occur throughout. The quality and number of lakes help to differentiate this GA from others.



**Figure 62. Beargrass blooms under a conifer canopy at Flesher Pass**



**Figure 63. Looking north into the Scapegoat Wilderness from the slopes of Red Mountain**





**Figure 64. Red Mountain**



**Figure 65. Large ponderosa pine**



**Figure 66. Looking north between Black and Nevada Mountains**



**Figure 67. Looking west near Granite Butte**



**Figure 68. Looking northwest near Snowbank Creek in a burned area**



## Literature

- United States Census Bureau. 2013. Population estimate of Montana Cities, 2013. As found at  
<[http://www.census.gov/popest/data/cities/totals/2013/files/SUB-EST2013\\_30.csv](http://www.census.gov/popest/data/cities/totals/2013/files/SUB-EST2013_30.csv)>
- Woods, Alan J., J.M. Omernik, J.A. Nesser, J. Shelden, J.A. Comstock, and S.H. Azevedo. 2002.  
Ecoregions of Montana, 2nd edition (color poster with map, descriptive text, summary tables, and  
photographs). Map scale 1:1,500,000.
- Weed and Pirsson, 1896. Geology of the Castle Mountain Mining District Montana. Washington  
Government Printing Office, Washington D.C.

# Appendix K: Revised Forest Plan Reader's Guide

## Introduction

Plan components are integrated across sections due to the interrelated nature of resources. This appendix provides an index that cross-references plan components related to resource topics that are commonly of interest, or those that are found in many sections. The index is sorted alphabetically by topic area, and plan components are listed in order of page number.

**Table 1. Resource topic cross reference index**

Topic	Page	Plan Component(s)
ACCESS - SEE RECREATION ACCESS		
AIR QUALITY	27	FW-AQ-DC-01; FW-AQ-GO-01
	72	FW-IRA-DC-01
	90	FW-LAND-DC-03
AIRSTRIPS - SEE AVIATION		
AMPHIBIANS	22	FW-FAH-DC-06
	51	FW-WL-GDL-14
	66	FW-WILD-DC-04
AQUATIC INVASIVE SPECIES	22	FW-FAH-DC-06; FW-FAH-GO-01; FW-FAH-GO-06
	23	FW-FAH-GDL-02
	94	FW-RT-GDL-10
	172	RM-CMA-GDL-01
AREAS OF TRIBAL IMPORTANCE - SEE TRIBAL IMPORTANCE (AREAS OF)		
AT-RISK SPECIES, AQUATIC	15	FW-WTR-DC-05
	16	FW-WTR-DC-13
	17	FW-WTR-GDL-03
	22	FW-FAH-DC-07; FW-FAH-DC-08; FW-FAH-GO-02; FW-FAH-GO-03; FW-FAH-GO-04; FW-FAH-OBJ-01
	23	FW-CWN-DC-01; FW-CWN-OBJ-02
	24	FW-CWN-GDL-02
	33	FW-VEGT-DC-02
	60	FW-REC-DC-04
	91	FW-LAND USE-GDL-03
	92	FW-RT-DC-04; FW-RT-OBJ-02
	98	FW-GRAZ-GDL-04
	103	FW-FWL-DC-05
	136	DI-FAH-DC-01; DI-FAH-GO-01
	185	UB-FAH-DC-01; UB-FAH-GO-01
AT-RISK SPECIES, PLANTS	15	FW-WTR-DC-05
	16	FW-WTR-DC-13
	33	FW-VEGT-DC-02

Topic	Page	Plan Component(s)
	45	FW-PRISK-DC-01; FW-PRISK-DC-02; FW-PRISK-GO-01; FW-PRISK-OBJ-01
	47	FW-INV-GDL-03
	60	FW-REC-DC-04
	92	FW-RT-DC-04
	98	FW-GRAZ-GDL-04
AT-RISK SPECIES, WILDLIFE	15	FW-WTR-DC-05
	16	FW-WTR-DC-13
	33	FW-VEGT-DC-02
	50	FW-WL-GDL-02; FW-WL-GDL-03; FW-WL-GDL-04; FW-WL-GO-04; FW-WL-GO-05; FW-WL-STD-01
	60	FW-REC-DC-04
	92	FW-RT-DC-04
	98	FW-GRAZ-GDL-04
	117	BB-WL-DC-02
	137	DI-WL-DC-01; DI-WL-DC-02
	145	EH-WL-DC-02
	169	RM-VEGF-DC-03; RM-WL-DC-01
	185	UB-VEGF-DC-03
	186	UB-WL-DC-02
AVIATION	54	FW-ROS-STD-02; FW-ROS-SUIT-04
	55	FW-ROS-STD-04; FW-ROS-SUIT-09; FW-ROS-SUIT-12
	56	FW-ROS-SUIT-19
	57	FW-ROS-SUIT-23; FW-ROS-SUIT-28
	63	FW-ACCESS-DC-02; FW-ACCESS-DC-03; FW-ACCESS-DC-04; FW-ACCESS-GDL-02
	77	FW-WSR-GDL-01
	92	FW-RT-GO-01
BADGER TWO MEDICINE AREA	171	RM-BTM-DC-01; RM-BTM-DC-02; RM-BTM-DC-03; RM-BTM-STD-01; RM-BTM-STD-02; RM-BTM-STD-03; RM-BTM-SUIT-01
BATS	50	FW-WL-DC-08
	51	FW-WL-GDL-10; FW-WL-GDL-11; FW-WL-GDL-12; FW-WL-GDL-13
	107	FW-EMIN-GDL-03
BEAVERS	16	FW-WTR-DC-08
	17	FW-WTR-GDL-03
BEST MANAGEMENT PRACTICES	17	FW-WTR-STD-03
	25	FW-SOIL-STD-03
BICYCLES – SEE MECHANIZED USE		
BIG GAME	49	FW-WL-DC-05; FW-WL-DC-06
	50	FW-WL-GDL-05
	51	FW-WL-GDL-06; FW-WL-GDL-15

Topic	Page	Plan Component(s)
	103	FW-FWL-DC-01
	104	FW-FWL-GDL-01
	117	BB-WL-DC-01; BB-WL-STD-01
	125	CA-WL-DC-01
	145	EH-WL-STD-01
	146	EH-RT-GDL-01
	147	EH-EMIN-GDL-01
	152	HW-WL-DC-01
	160	LB-WL-DC-01
	178	SN-VEGF-DC-03; SN-VEGNF-GDL-01
BIGHORN SHEEP	47	FW-INV-STD-02
	51	FW-WL-GDL-15
	117	BB-WL-DC-01; BB-WL-STD-01
	145	EH-WL-STD-01
	160	LB-WL-DC-02; LB-WL-STD-01
	170	RM-WL-DC-02; RM-WL-GDL-01; RM-WL-STD-01
BRIDGES - SEE INFRASTRUCTURE - BRIDGES		
BULL TROUT	22	FW-FAH-GO-02
	24	FW-CWN-GDL-02
	92	FW-RT-OBJ-02
	136	DI-FAH-DC-01; DI-FAH-GO-01
	185	UB-FAH-DC-01; UB-FAH-GO-01
CANADA LYNX	137	DI-WL-DC-01
	169	RM-VEGF-DC-03; RM-WL-DC-01
	185	UB-VEGF-DC-03
	186	UB-WL-DC-01
CARBON STORAGE & SEQUESTRATION	107	FW-CARB-DC-01
CAVES	16	FW-WTR-DC-14
	50	FW-WL-DC-08
	51	FW-WL-GDL-10; FW-WL-GDL-11; FW-WL-GDL-12; FW-WL-GDL-13
	66	FW-WILD-GDL-02
	106	FW-EMIN-DC-01; FW-EMIN-STD-02
	107	FW-EMIN-GDL-03
CLIMATE	16	FW-WTR-DC-13
	21	FW-FAH-DC-01
	30	FW-VEGT-DC-01
	33	FW-VEGT-DC-03
	34	FW-VEGT-GDL-03
	49	FW-WL-DC-03
	61	FW-REC-GDL-01

Topic	Page	Plan Component(s)
	107	FW-CARB-DC-01
COARSE WOODY DEBRIS - SEE DOWN WOODY DEBRIS		
CONNECTIVITY	15	FW-WTR-DC-02
	21	FW-FAH-DC-04
	22	FW-FAH-GO-05; FW-FAH-OBJ-03
	23	FW-FAH-GDL-06
	33	FW-VEGT-DC-03
	38	FW-VEGF-DC-07
	40	FW-VEGF-DC-10
	50	FW-WL-GO-03
	65	FW-WILD-DC-03
	72	FW-IRA-DC-01
	137	DI-WL-GDL-01; DI-WL-GO-01
	160	LB-WL-DC-01
	169	RM-WL-DC-01
	186	UB-WL-DC-01; UB-WL-GDL-01
CONSERVATION MANAGEMENT AREAS - SEE ROCKY MOUNTAIN FRONT CONSERVATION MANAGEMENT AREAS		
CONSERVATION WATERSHED NETWORK	17	FW-WTR-OBJ-02
	23	FW-CWN-DC-01; FW-CWN-OBJ-01; FW-CWN-OBJ-02
	24	FW-CWN-GDL-01; FW-CWN-GDL-02; FW-CWN-GDL-03
	92	FW-RT-OBJ-01; FW-RT-OBJ-02
CONTINENTAL DIVIDE NATIONAL SCENIC TRAIL	29	FW-FIRE-GDL-02
	81	FW-CDNST-DC-01; FW-CDNST-DC-02; FW-CDNST-DC-03; FW-CDNST-DC-04
	82	FW-CDNST-DC-05; FW-CDNST-DC-06; FW-CDNST-DC-07; FW-CDNST-GDL-01; FW-CDNST-GDL-02; FW-CDNST-GDL-03; FW-CDNST-GO-01; FW-CDNST-OBJ-01; FW-CDNST-STD-01; FW-CDNST-STD-02; FW-CDNST-STD-03
	83	FW-CDNST-GDL-04; FW-CDNST-GDL-05; FW-CDNST-GDL-06; FW-CDNST-GDL-07; FW-CDNST-GDL-08; FW-CDNST-GDL-09; FW-CDNST-GDL-10
CULTURAL AND HISTORIC RESOURCES	54	FW-ROS-DC-02; FW-ROS-DC-04
	55	FW-ROS-DC-05; FW-ROS-DC-06
	56	FW-ROS-DC-07
	60	FW-REC-DC-01; FW-REC-DC-04; FW-REC-DC-07
	61	FW-REC-GDL-10
	62	FW-RSUP-DC-02; FW-RSUP-DC-04
	63	FW-ACCESS-DC-04; FW-ACCESS-GDL-01
	70	FW-WSA-SUIT-05

Topic	Page	Plan Component(s)
	72	FW-IRA-DC-05
	82	FW-CDNST-DC-07; FW-CDNST-GO-01
	84	FW-LCNHT-DC-01; FW-LCNHT-DC-03; FW-LCNHT-GDL-01; FW-LCNHT-STD-01
	85	FW-LCIC-DC-01; FW-LCIC-DC-02
	88	FW-CR-DC-01; FW-CR-DC-02; FW-CR-DC-03; FW-CR-DC-04; FW-CR-GDL-01; FW-CR-GO-01; FW-CR-GO-02
	92	FW-RT-DC-01; FW-RT-DC-04
	94	FW-BRDG-DC-01
	95	FW-CONNECT-DC-01; FW-CONNECT-DC-02; FW-CONNECT-GO-01; FW-CONNECT-GO-02; FW-FAC-DC-01
	96	FW-CONNECT-GDL-01; FW-CONNECT-GO-08; FW-CONNECT-OBJ-02; FW-CONNECT-OBJ-03
	107	FW-EMIN-GDL-04
	118	BB-MISCOR-DC-03; BB-MISCOR-DC-04; BB-MISCOR-DC-05
	160	LB-SMITH-DC-02
	162	LB-KHSB-DC-03
	171	RM-BTM-DC-01; RM-BTM-STD-02; RM-CMA-DC-01
DOWN WOODY DEBRIS	16	FW-WTR-DC-11; FW-WTR-DC-12
	18	FW-RMZ-DC-01; FW-RMZ-DC-02
	20	FW-RMZ-GDL-01; FW-RMZ-GDL-02
	21	FW-FAH-DC-02
	22	FW-FAH-OBJ-01
	24	FW-SOIL-DC-01
	26	FW-SOIL-GDL-05
	28	FW-FIRE-DC-02
	30	FW-VEGT-DC-01
	37	FW-VEGF-DC-05
	38	FW-VEGF-DC-07
	40	FW-VEGF-DC-09; FW-VEGF-DC-11
	41	FW-VEGF-GDL-01
	43	FW-VEGF-GDL-06
	45	FW-POLL-DC-01
	138	DI-SHRA-DC-03
ECOLOGICAL INTEGRITY	17	FW-WTR-GDL-04
ECONOMICS	27	FW-AQ-DC-01
	37	FW-VEGF-DC-05
	60	FW-REC-DC-02
	62	FW-RSUP-DC-03
	85	FW-LCIC-GO-02
	99	FW-TIM-DC-02
	100	FW-TIM-DC-03; FW-TIM-STD-03



Topic	Page	Plan Component(s)
	101	FW-TIM-STD-06
	103	FW-OFP-GDL-02
	106	FW-EMIN-DC-05
ELIGIBLE WILD & SCENIC RIVERS	77	FW-WSR-GDL-01
ELK	49	FW-WL-DC-05; FW-WL-DC-06
	50	FW-WL-GDL-05
	51	FW-WL-GDL-06; FW-WL-GDL-15
	103	FW-FWL-DC-01
	104	FW-FWL-GDL-01; FW-FWL-GDL-02
	144	EH-WMU-SUIT-03
	146	EH-RT-GDL-01; EH-TIM-GDL-01
	147	EH-EMIN-GDL-01
ELKHORNS WILDLIFE MANAGEMENT UNIT	143	EH-WMU-DC-01; EH-WMU-GO-01; EH-WMU-GO-02; EH-WMU-GO-03; EH-WMU-GO-04
	144	EH-WMU-GDL-01; EH-WMU-SUIT-01; EH-WMU-SUIT-02; EH-WMU-SUIT-03
FACILITIES - SEE INFRASTRUCTURE - FACILITIES		
FIRE AND FUELS MANAGEMENT	17	FW-WTR-STD-04
	20	FW-RMZ-GDL-01; FW-RMZ-GDL-02; FW-RMZ-GDL-03; FW-RMZ-GDL-05; FW-RMZ-GDL-06; FW-RMZ-STD-02; FW-RMZ-STD-03; FW-RMZ-STD-04; FW-RMZ-STD-06
	21	FW-RMZ-GDL-08; FW-RMZ-GDL-10
	23	FW-FAH-GDL-03
	25	FW-SOIL-GDL-01; FW-SOIL-GDL-02; FW-SOIL-STD-01; FW-SOIL-STD-02; FW-SOIL-STD-03
	26	FW-SOIL-GDL-03; FW-SOIL-GDL-04; FW-SOIL-GDL-05; FW-SOIL-GDL-06; FW-SOIL-GDL-07
	27	FW-AQ-GO-01
	28	FW-FIRE-DC-01; FW-FIRE-DC-02; FW-FIRE-GO-01; FW-FIRE-GO-02; FW-FIRE-OBJ-01; FW-FIRE-STD-01
	29	FW-FIRE-GDL-01; FW-FIRE-GDL-02; FW-FIRE-GDL-03; FW-FIRE-GDL-04
	34	FW-VEGT-GDL-04; FW-VEGT-OBJ-01
	40	FW-VEGF-DC-12
	41	FW-VEGF-GDL-01; FW-VEGF-GDL-02
	42	FW-VEGF-GDL-04
	43	FW-VEGF-GDL-05; FW-VEGF-GDL-06
	44	FW-VEGNF-GDL-01
	47	FW-INV-STD-01
	49	FW-WL-DC-03
	51	FW-WL-GDL-06; FW-WL-GDL-09; FW-WL-GDL-10
	54	FW-ROS-GDL-03
	55	FW-ROS-GDL-05; FW-ROS-GDL-07
	56	FW-ROS-GDL-08; FW-ROS-GDL-10

Topic	Page	Plan Component(s)
	57	FW-ROS-GDL-12
	61	FW-REC-GDL-02; FW-REC-SUIT-01
	64	FW-SCENERY-GDL-01
	65	FW-WILD-DC-02
	68	FW-RECWILD-SUIT-02
	70	FW-WSA-SUIT-03
	72	FW-IRA-GDL-01
	77	FW-WSR-GDL-01
	83	FW-CDNST-GDL-10
	86	FW-RNA-SUIT-01
	91	FW-LAND USE-GDL-02
	95	FW-CONNECT-DC-02
	99	FW-TIM-DC-02
	100	FW-TIM-STD-02
	102	FW-TIM-GDL-03
	104	FW-FWL-GDL-01
	124	CA-WTR-GDL-01
	136	DI-WTR-GDL-01
	137	DI-WL-GDL-01
	138	DI-SHRA-DC-03
	144	EH-WMU-SUIT-02; EH-WTR-GDL-01
	158	LB-WTR-GDL-01
	171	RM-BTM-SUIT-01
	177	SN-WTR-GDL-01
	178	SN-TIM-GDL-01
	186	UB-WL-GDL-01
FISH & WILDLIFE	103	FW-FWL-DC-01; FW-FWL-DC-02; FW-FWL-DC-03; FW-FWL-DC-04; FW-FWL-DC-05; FW-FWL-DC-06
	104	FW-FWL-GDL-01; FW-FWL-GDL-02
	118	BB-FWL-DC-01
	130	CR-FWL-DC-01
	153	HW-FWL-DC-01
	178	SN-FWL-DC-02
	179	SN-FWL-DC-01
FISHERIES AND AQUATIC HABITAT	15	FW-WTR-DC-01; FW-WTR-DC-02
	16	FW-WTR-DC-10; FW-WTR-DC-11; FW-WTR-GO-01
	17	FW-WTR-GDL-02; FW-WTR-GDL-03; FW-WTR-STD-01; FW-WTR-STD-02
	21	FW-FAH-DC-01; FW-FAH-DC-02; FW-FAH-DC-03; FW-FAH-DC-04; FW-FAH-DC-05
	22	FW-FAH-DC-06; FW-FAH-DC-07; FW-FAH-DC-08; FW-FAH-GO-01; FW-FAH-GO-02; FW-FAH-GO-03; FW-FAH-GO-04; FW-FAH-GO-05; FW-FAH-GO-06; FW-FAH-OBJ-01; FW-FAH-OBJ-02; FW-FAH-OBJ-03

Topic	Page	Plan Component(s)
	23	FW-FAH-GDL-01; FW-FAH-GDL-02; FW-FAH-GDL-03; FW-FAH-GDL-04; FW-FAH-GDL-05; FW-FAH-GDL-06; FW-FAH-STD-01
	24	FW-SOIL-DC-01
	51	FW-WL-GDL-14
	60	FW-REC-DC-04
	61	FW-REC-GDL-04; FW-REC-GDL-05
	66	FW-WILD-DC-04; FW-WILD-GDL-01
	72	FW-IRA-DC-01
	77	FW-WSR-GDL-01
	91	FW-LAND USE-GDL-03; FW-LAND USE-GDL-04
	92	FW-RT-DC-04; FW-RT-OBJ-02
	93	FW-RT-GDL-02; FW-RT-GDL-03; FW-RT-GDL-04; FW-RT-GDL-06; FW-RT-GDL-08; FW-RT-STD-02; FW-RT-STD-04
	94	FW-BRDG-DC-02; FW-RT-GDL-09; FW-RT-GDL-10; FW-RT-GDL-11; FW-RT-GDL-12; FW-RT-GDL-13
	95	FW-CONNECT-DC-02
	97	FW-GRAZ-GDL-01
	98	FW-GRAZ-GDL-06; FW-GRAZ-GDL-08
	101	FW-TIM-STD-07
	103	FW-FWL-DC-05; FW-FWL-DC-06
	106	FW-EMIN-GDL-01; FW-EMIN-GDL-02
	136	DI-FAH-DC-01; DI-FAH-GO-01
	171	RM-CMA-DC-01
	185	UB-FAH-DC-01; UB-FAH-GO-01
FISHING	22	FW-FAH-OBJ-02
	103	FW-FWL-DC-05; FW-FWL-DC-06
FLAMMULATED OWL	117	BB-WL-DC-02
	137	DI-WL-DC-02
	145	EH-WL-DC-02
	186	UB-WL-DC-02
FUELS; FUEL REDUCTION - SEE FIRE AND FUELS MANAGEMENT	(blank)	(blank)
GENETICS	17	FW-WTR-GDL-04
	22	FW-FAH-DC-08
	33	FW-VEGT-DC-03
	42	FW-VEGF-GDL-03
GEOLOGY, ENERGY & MINERALS	20	FW-RMZ-GDL-07
	21	FW-FAH-DC-02
	25	FW-SOIL-GDL-02; FW-SOIL-STD-01
	26	FW-SOIL-GDL-03
	34	FW-VEGT-DC-04
	47	FW-INV-STD-01

Topic	Page	Plan Component(s)
	51	FW-WL-GDL-10; FW-WL-GDL-11
	61	FW-REC-SUIT-02
	77	FW-WSR-GDL-01
	82	FW-CDNST-STD-01; FW-CDNST-STD-02
	90	FW-LAND USE-DC-01; FW-LAND-DC-01
	105	FW-SU-DC-02
	106	FW-EMIN-DC-01; FW-EMIN-DC-02; FW-EMIN-DC-03; FW-EMIN-DC-04; FW-EMIN-DC-05; FW-EMIN-DC-06; FW-EMIN-DC-07; FW-EMIN-GDL-01; FW-EMIN-GDL-02; FW-EMIN-OBJ-01; FW-EMIN-STD-01; FW-EMIN-STD-02; FW-EMIN-STD-03
	107	FW-EMIN-GDL-03; FW-EMIN-GDL-04; FW-EMIN-GDL-05
	145	EH-WL-GDL-01
	146	EH-ACCESS-GDL-01; EH-RT-GDL-01
	147	EH-EMIN-GDL-01; EH-EMIN-GDL-02
GRAZING - SEE LIVESTOCK GRAZING		
GRIZZLY BEAR	50	FW-WL-GDL-02
	65	FW-WILD-DC-03
	137	DI-WL-DC-01
	169	RM-WL-DC-01
	170	RM-WL-STD-01
	186	UB-WL-DC-01
GROUNDWATER DEPENDENT ECOSYSTEMS - SEE RIPARIAN, WETLANDS, AND GROUNDWATER DEPENDENT ECOSYSTEMS		
HARLEQUIN DUCK	170	RM-WL-DC-03; RM-WL-GDL-02
	186	UB-WL-DC-03; UB-WL-GDL-02
HARVEST - SEE TIMBER	(blank)	(blank)
HEALTH & SAFETY	27	FW-AQ-DC-01
	28	FW-FIRE-STD-01
	40	FW-VEGF-DC-12
	42	FW-VEGF-GDL-04
	49	FW-WL-DC-04
	50	FW-WL-GDL-02; FW-WL-GO-02
	60	FW-REC-DC-02; FW-REC-DC-06
	61	FW-REC-SUIT-01
	62	FW-RSUP-DC-02; FW-RSUP-DC-03; FW-RSUP-DC-05
	63	FW-ACCESS-DC-04; FW-ACCESS-GDL-02
	83	FW-CDNST-GDL-05; FW-CDNST-GDL-08
	84	FW-LCNHT-SUIT-01
	91	FW-LAND USE-GDL-02
	92	FW-RT-DC-01; FW-RT-GO-03
	94	FW-BRDG-DC-01

Topic	Page	Plan Component(s)
	95	FW-CONNECT-DC-03
	96	FW-CONNECT-OBJ-02
	102	FW-TIM-GDL-03; FW-TIM-GDL-04
	106	FW-EMIN-DC-02; FW-EMIN-DC-07
	118	BB-MISCOR-SUIT-01
	161	LB-SHOWSKI-DC-02; LB-SMITH-SUIT-01
	170	RM-TETONSKI-DC-02
	171	RM-CMA-DC-02
	178	SN-TIM-GDL-01
HUNTING	103	FW-FWL-DC-01; FW-FWL-DC-04
	104	FW-FWL-GDL-01; FW-FWL-GDL-02
	118	BB-FWL-DC-01
	130	CR-FWL-DC-01
	144	EH-WMU-SUIT-03
	153	HW-FWL-DC-01
	178	SN-FWL-DC-01; SN-FWL-DC-02
INFRASTRUCTURE - BRIDGES	23	FW-FAH-GDL-05
	55	FW-ROS-DC-06
	56	FW-ROS-DC-08
	94	FW-BRDG-DC-01; FW-BRDG-DC-02; FW-BRDG-GDL-01
INFRASTRUCTURE - FACILITIES	23	FW-FAH-GDL-05
	34	FW-VEGT-DC-04
	54	FW-ROS-GDL-01
	60	FW-REC-DC-03; FW-REC-DC-04; FW-REC-DC-05
	61	FW-REC-GDL-04; FW-REC-GDL-05; FW-REC-GDL-06; FW-REC-GDL-08
	64	FW-SCENERY-GDL-01
	66	FW-WILD-DC-06
	68	FW-RECWILD-SUIT-07
	70	FW-WSA-SUIT-06
	77	FW-WSR-GDL-01
	95	FW-FAC-DC-01; FW-FAC-DC-02; FW-FAC-GO-01
	106	FW-EMIN-DC-02
	161	LB-SHOWSKI-DC-02
	162	LB-TCEF-DC-03
	170	RM-TETONSKI-DC-02
	171	RM-CMA-DC-02
INFRASTRUCTURE - ROADS & TRAILS	17	FW-WTR-GDL-02; FW-WTR-GDL-03
	18	FW-RMZ-OBJ-01
	20	FW-RMZ-GDL-02; FW-RMZ-GDL-04; FW-RMZ-GDL-07
	22	FW-FAH-OBJ-01; FW-FAH-OBJ-03

Topic	Page	Plan Component(s)
	23	FW-CWN-OBJ-01; FW-FAH-GDL-05
	24	FW-CWN-GDL-01; FW-CWN-GDL-02
	26	FW-SOIL-GDL-06
	34	FW-VEGT-GDL-04
	47	FW-INV-STD-01
	51	FW-WL-GDL-12; FW-WL-GDL-13
	54	FW-ROS-DC-02; FW-ROS-DC-03; FW-ROS-DC-04; FW-ROS-STD-03; FW-ROS-SUIT-01
	55	FW-ROS-DC-05; FW-ROS-DC-06; FW-ROS-STD-05; FW-ROS-SUIT-06
	56	FW-ROS-DC-08; FW-ROS-DC-09
	57	FW-ROS-SUIT-31
	60	FW-REC-DC-04
	63	FW-ACCESS-DC-01; FW-ACCESS-DC-03; FW- ACCESS-DC-04; FW-ACCESS-GDL-02
	66	FW-WILD-DC-06; FW-WILD-DC-08
	68	FW-RECWILD-SUIT-06
	70	FW-WSA-SUIT-05
	77	FW-WSR-GDL-01
	82	FW-CDNST-GDL-01; FW-CDNST-OBJ-01
	83	FW-CDNST-GDL-04; FW-CDNST-GDL-05; FW-CDNST- GDL-08; FW-CDNST-GDL-09
	92	FW-RT-DC-01; FW-RT-DC-02; FW-RT-DC-03; FW-RT- DC-04; FW-RT-GO-01; FW-RT-GO-02; FW-RT-GO-03; FW-RT-OBJ-01; FW-RT-OBJ-02; FW-RT-OBJ-03; FW- RT-OBJ-04; FW-RT-OBJ-05; FW-RT-OBJ-06
	93	FW-RT-GDL-01; FW-RT-GDL-02; FW-RT-GDL-03; FW- RT-GDL-04; FW-RT-GDL-05; FW-RT-GDL-06; FW-RT- GDL-07; FW-RT-GDL-08; FW-RT-STD-01; FW-RT-STD- 02; FW-RT-STD-03; FW-RT-STD-04
	94	FW-RT-GDL-09; FW-RT-GDL-10; FW-RT-GDL-11; FW- RT-GDL-12; FW-RT-GDL-13
	104	FW-FWL-GDL-02
	137	DI-WL-GDL-01
	146	EH-RT-GDL-01; EH-RT-STD-01; EH-RT-STD-02
	162	LB-TCEF-DC-03
	170	RM-WL-GDL-02
	172	RM-CMA-STD-01; RM-CMA-STD-02
	186	UB-WL-GDL-01; UB-WL-GDL-02
INSECTS & DISEASE	30	FW-VEGT-DC-01
	39	FW-VEGF-DC-08
	40	FW-VEGF-DC-09; FW-VEGF-DC-11; FW-VEGF-DC-12
	42	FW-VEGF-GDL-04
	43	FW-VEGF-GDL-05
	49	FW-WL-DC-03
	65	FW-WILD-DC-02



Topic	Page	Plan Component(s)
	68	FW-RECWILD-DC-02
	69	FW-WSA-DC-01
	72	FW-IRA-DC-02
	81	FW-CDNST-DC-02
	99	FW-TIM-DC-02
	101	FW-TIM-STD-06; FW-TIM-STD-07
	102	FW-TIM-GDL-03; FW-TIM-STD-10
	171	RM-BTM-DC-02
INVASIVE PLANTS	20	FW-RMZ-STD-05
	30	FW-VEGT-DC-01
	34	FW-VEGT-GDL-04; FW-VEGT-OBJ-01
	41	FW-VEGF-DC-13
	44	FW-VEGNF-DC-02
	46	FW-INV-DC-01; FW-INV-DC-02; FW-INV-DC-03; FW-INV-GO-01; FW-INV-GO-02; FW-INV-GO-03
	47	FW-INV-GDL-01; FW-INV-GDL-02; FW-INV-GDL-03; FW-INV-GDL-04; FW-INV-OBJ-01; FW-INV-STD-01; FW-INV-STD-02
	50	FW-WL-STD-01
	68	FW-RECWILD-SUIT-02
	70	FW-WSA-SUIT-03
	91	FW-LAND USE-GDL-02
INVENTORIED ROADLESS AREAS	72	FW-IRA-DC-01; FW-IRA-DC-02; FW-IRA-DC-03; FW-IRA-DC-04; FW-IRA-DC-05; FW-IRA-GDL-01
	73	FW-IRA-SUIT-01
KINGS HILL SCENIC BYWAY	162	LB-KHSB-DC-01; LB-KHSB-DC-02; LB-KHSB-DC-03; LB-KHSB-GO-01
	163	LB-KHSB-GDL-01; LB-KHSB-SUIT-01
LAND STATUS AND OWNERSHIP	90	FW-LAND-DC-01; FW-LAND-DC-02; FW-LAND-DC-03; FW-LAND-DC-04; FW-LAND-GDL-01; FW-LAND-GDL-02; FW-LAND-OBJ-01; FW-LAND-OBJ-02
	143	EH-WMU-GO-04
LAND USES	34	FW-VEGT-DC-04
	46	FW-POLL-GDL-01
	68	FW-RECWILD-SUIT-05
	69	FW-WSA-SUIT-02
	77	FW-WSR-GDL-01
	83	FW-CDNST-GDL-06; FW-CDNST-GDL-07
	90	FW-LAND USE-DC-01
	91	FW-LAND USE-DC-02; FW-LAND USE-GDL-01; FW-LAND USE-GDL-02; FW-LAND USE-GDL-03; FW-LAND USE-GDL-04; FW-LAND USE-GDL-05; FW-LAND USE-GDL-06; FW-LAND USE-GDL-07; FW-LAND USE-GO-01; FW-LAND USE-GO-02
	119	BB-SU-GO-01; BB-SU-STD-01
	145	EH-WL-GDL-01

Topic	Page	Plan Component(s)
LARGE TREES	30	FW-VEGT-DC-01
	37	FW-VEGF-DC-05
	38	FW-VEGF-DC-06
	41	FW-VEGF-GDL-01
	117	BB-WL-DC-02
	137	DI-WL-DC-02
	145	EH-WL-DC-02
	186	UB-WL-DC-02
LEWIS & CLARK NATIONAL HISTORIC TRAIL	84	FW-LCNHT-DC-01; FW-LCNHT-DC-02; FW-LCNHT-DC-03; FW-LCNHT-GDL-01; FW-LCNHT-GDL-02; FW-LCNHT-GO-01; FW-LCNHT-STD-01; FW-LCNHT-SUIT-01
LEWIS & CLARK NATIONAL HISTORIC TRAIL INTERPRETIVE CENTER	60	FW-REC-OBJ-03
	85	FW-LCIC-DC-01; FW-LCIC-DC-02; FW-LCIC-DC-03; FW-LCIC-GO-01; FW-LCIC-GO-02
LEWIS'S WOODPECKER - SEE AT-RISK SPECIES, WILDLIFE		
LIVESTOCK GRAZING	23	FW-CWN-OBJ-01; FW-FAH-GDL-04
	24	FW-CWN-GDL-03
	34	FW-VEGT-GDL-02; FW-VEGT-OBJ-01
	47	FW-INV-STD-01; FW-INV-STD-02
	50	FW-WL-GDL-01; FW-WL-GDL-03
	51	FW-WL-GDL-07; FW-WL-GDL-08
	61	FW-REC-SUIT-03
	66	FW-WILD-SUIT-01
	68	FW-RECWILD-SUIT-08
	70	FW-WSA-SUIT-07
	77	FW-WSR-GDL-01
	86	FW-RNA-SUIT-03
	97	FW-GRAZ-DC-01; FW-GRAZ-DC-02; FW-GRAZ-DC-03; FW-GRAZ-DC-04; FW-GRAZ-GDL-01; FW-GRAZ-GDL-02; FW-GRAZ-GDL-03; FW-GRAZ-STD-01; FW-GRAZ-STD-02
	98	FW-GRAZ-GDL-04; FW-GRAZ-GDL-05; FW-GRAZ-GDL-06; FW-GRAZ-GDL-07; FW-GRAZ-GDL-08; FW-GRAZ-GDL-09
	102	FW-TIM-GDL-03
	117	BB-WL-DC-01; BB-WL-STD-01
	124	CA-WTR-GDL-02
	145	EH-WL-GDL-01; EH-WL-STD-01
	146	EH-WL-GDL-02
	158	LB-WTR-GDL-02
	160	LB-WL-DC-02; LB-WL-STD-01
	162	LB-TCEF-SUIT-04
	170	RM-WL-DC-02; RM-WL-GDL-01; RM-WL-STD-01

Topic	Page	Plan Component(s)
	172	RM-CMA-SUIT-02
	178	SN-WTR-GDL-02
LYNX - SEE CANADA LYNX		
MECHANIZED USE	54	FW-ROS-DC-04; FW-ROS-SUIT-02
	55	FW-ROS-DC-06; FW-ROS-SUIT-07; FW-ROS-SUIT-14
	56	FW-ROS-SUIT-18
	57	FW-ROS-SUIT-22; FW-ROS-SUIT-27
	63	FW-ACCESS-DC-01
	66	FW-WILD-DC-07; FW-WILD-SUIT-02
	68	FW-RECWILD-SUIT-01; FW-RECWILD-SUIT-03
	138	DI-SHRA-SUIT-02; DI-SHRA-SUIT-03
	146	EH-ACCESS-SUIT-01
MINING - SEE GEOLOGY, ENERGY & MINERALS		
MISSOURI RIVER CORRIDOR	117	BB-MISCOR-DC-01
	118	BB-MISCOR-DC-02; BB-MISCOR-DC-03; BB-MISCOR-DC-04; BB-MISCOR-DC-05; BB-MISCOR-DC-06; BB-MISCOR-GDL-01; BB-MISCOR-GO-01; BB-MISCOR-SUIT-01
MOTORIZED USE	54	FW-ROS-DC-02; FW-ROS-DC-03; FW-ROS-DC-04; FW-ROS-OBJ-01; FW-ROS-OBJ-02; FW-ROS-STD-01; FW-ROS-STD-03; FW-ROS-SUIT-03; FW-ROS-SUIT-05
	55	FW-ROS-DC-06; FW-ROS-SUIT-08; FW-ROS-SUIT-10; FW-ROS-SUIT-11
	56	FW-ROS-SUIT-15; FW-ROS-SUIT-16; FW-ROS-SUIT-17; FW-ROS-SUIT-20
	57	FW-ROS-SUIT-21; FW-ROS-SUIT-24; FW-ROS-SUIT-26; FW-ROS-SUIT-30
	63	FW-ACCESS-DC-01; FW-ACCESS-GDL-02
	66	FW-WILD-SUIT-02
	68	FW-RECWILD-SUIT-01; FW-RECWILD-SUIT-03
	77	FW-WSR-GDL-01
	82	FW-CDNST-STD-03
	86	FW-RNA-SUIT-02
	92	FW-RT-DC-03
	104	FW-FWL-GDL-02
	137	DI-WL-GDL-01
	144	EH-WMU-SUIT-03
	146	EH-ACCESS-DC-01
	162	LB-TCEF-SUIT-05
	172	RM-CMA-STD-01
	186	UB-WL-GDL-01
MOUNTAIN GOATS	51	FW-WL-GDL-15
	65	FW-WILD-DC-03

Topic	Page	Plan Component(s)
	118	BB-FWL-DC-01
	130	CR-FWL-DC-01
	152	HW-WL-DC-01
	153	HW-FWL-DC-01
	178	SN-FWL-DC-01
MULTIPLE USES - SEE SPECIFIC RESOURCE AREAS		
MUNICIPAL WATERSHED	15	FW-WTR-DC-05
	23	FW-CWN-OBJ-02
	124	CA-WTR-DC-01; CA-WTR-GDL-01; CA-WTR-GDL-02; CA-WTR-GO-01
	136	DI-WTR-DC-01; DI-WTR-GDL-01; DI-WTR-GO-01
	144	EH-WTR-DC-01; EH-WTR-GDL-01; EH-WTR-GO-01
	158	LB-WTR-GDL-01; LB-WTR-GDL-02
	159	LB-WTR-DC-01; LB-WTR-GO-01
	177	SN-WTR-DC-01; SN-WTR-GDL-01; SN-WTR-GO-01
	178	SN-WTR-GDL-02
NATIONAL RECREATION TRAILS	80	FW-NRT-DC-01; FW-NRT-DC-02; FW-NRT-GDL-01
NATURAL RANGE OF VARIATION	15	FW-WTR-DC-03; FW-WTR-DC-07
	16	FW-WTR-DC-09; FW-WTR-DC-13
	21	FW-FAH-DC-03
	30	FW-VEGT-DC-01
	38	FW-VEGF-DC-07
	40	FW-VEGF-DC-09; FW-VEGF-DC-10; FW-VEGF-DC-12
	44	FW-VEGNF-DC-01; FW-VEGNF-DC-03
	101	FW-TIM-STD-08
NONMOTORIZED USE	54	FW-ROS-DC-02; FW-ROS-DC-03; FW-ROS-DC-04; FW-ROS-SUIT-01; FW-ROS-SUIT-06
	55	FW-ROS-SUIT-13
	63	FW-ACCESS-DC-01; FW-ACCESS-GDL-02
	66	FW-WILD-DC-07
	82	FW-CDNST-OBJ-01
	83	FW-CDNST-GDL-04
	86	FW-RNA-SUIT-02
	92	FW-RT-DC-03
	138	DI-SHRA-DC-01
	146	EH-ACCESS-DC-01
	171	RM-BTM-DC-01; RM-CMA-DC-03
OIL & GAS - SEE GEOLOGY, ENERGY & MINERALS		
OLD GROWTH	38	FW-VEGF-DC-07
	42	FW-VEGF-GDL-04
	43	FW-VEGF-GDL-05

Topic	Page	Plan Component(s)
OTHER FOREST PRODUCTS AND WOOD FOR FUEL	66	FW-WILD-SUIT-04
	89	FW-TRIBAL-DC-01
	103	FW-OFP-DC-01; FW-OFP-DC-02; FW-OFP-GDL-01; FW-OFP-GDL-02; FW-OFP-GDL-03
	146	EH-TIM-GDL-01
	162	LB-TCEF-SUIT-02; LB-TCEF-SUIT-03
OUTFITTER & GUIDES	56	FW-ROS-DC-09
	66	FW-WILD-DC-09
	96	FW-CONNECT-GO-08
PARTNERSHIP AND COLLABORATION	22	FW-FAH-GO-04
	28	FW-FIRE-GO-01
	45	FW-POLL-GO-01
	46	FW-INV-GO-02
	50	FW-WL-GO-04; FW-WL-GO-05
	60	FW-REC-GO-01
	63	FW-ACCESS-GO-01
	66	FW-WILD-GO-02
	82	FW-CDNST-GO-01
	84	FW-LCNHT-GO-01
	85	FW-LCIC-GO-01
	88	FW-CR-GO-01
	89	FW-TRIBAL-GO-01; FW-TRIBAL-GO-02
	92	FW-RT-GO-01; FW-RT-GO-02
	95	FW-CONNECT-GO-01; FW-CONNECT-GO-02; FW-CONNECT-GO-03; FW-CONNECT-GO-04; FW-CONNECT-GO-05; FW-CONNECT-GO-06; FW-CONNECT-GO-07; FW-FAC-GO-01
	96	FW-CONNECT-OBJ-01; FW-CONNECT-OBJ-03
	97	FW-GRAZ-GDL-03
	118	BB-MISCOR-GO-01
	124	CA-WTR-GDL-01
	136	DI-FAH-GO-01; DI-WTR-GO-01
	138	DI-SHRA-GO-01
	143	EH-WMU-GO-01; EH-WMU-GO-02; EH-WMU-GO-03
	144	EH-WTR-GO-01
	159	LB-WTR-GO-01
	160	LB-SMITH-GO-01
	162	LB-KHSB-GO-01
	171	RM-BTM-STD-01
	177	SN-WTR-GO-01
	185	UB-FAH-GO-01
POLLINATORS	45	FW-POLL-DC-01; FW-POLL-GO-01
	46	FW-POLL-GDL-01

Topic	Page	Plan Component(s)
	47	FW-INV-GDL-01
PREScribed FIRE - SEE FIRE AND FUELS MANAGEMENT		
PUBLIC INFORMATION, INTERPRETATION, AND EDUCATION	22	FW-FAH-GO-06
	46	FW-INV-GO-01
	50	FW-WL-GDL-04; FW-WL-GO-02
	51	FW-WL-GDL-11
	57	FW-ROS-SUIT-25
	80	FW-NRT-DC-02
	82	FW-CDNST-DC-07
	84	FW-LCNHT-DC-01; FW-LCNHT-DC-03
	85	FW-LCIC-DC-01; FW-LCIC-DC-02; FW-LCIC-DC-03
	86	FW-RNA-SUIT-02
	88	FW-CR-DC-03; FW-CR-DC-04
	95	FW-CONNECT-DC-01; FW-CONNECT-DC-02; FW-CONNECT-DC-03; FW-CONNECT-GO-01; FW-CONNECT-GO-02; FW-CONNECT-GO-03; FW-CONNECT-GO-04; FW-CONNECT-GO-05; FW-CONNECT-GO-06; FW-CONNECT-GO-07
	96	FW-CONNECT-GDL-01; FW-CONNECT-GO-08; FW-CONNECT-GO-09; FW-CONNECT-OBJ-01; FW-CONNECT-OBJ-02; FW-CONNECT-OBJ-03
	105	FW-SU-DC-01
	106	FW-EMIN-DC-04
	118	BB-MISCOR-DC-03; BB-MISCOR-DC-04
	162	LB-KHSB-DC-02; LB-KHSB-DC-03; LB-KHSB-GO-01
	171	RM-BTM-DC-03
RECOMMENDED WILDERNESS - SEE WILDERNESS, RECOMMENDED		
RECREATION ACCESS	52	FW-ROS-DC-01
	63	FW-ACCESS-DC-01; FW-ACCESS-DC-02; FW-ACCESS-DC-03; FW-ACCESS-DC-04; FW-ACCESS-GDL-01; FW-ACCESS-GDL-02; FW-ACCESS-GO-01
	80	FW-NRT-DC-02
	81	FW-CDNST-DC-04
	90	FW-LAND-DC-02; FW-LAND-GDL-01; FW-LAND-OBJ-01
	91	FW-LAND USE-GDL-01; FW-LAND USE-GO-02
	92	FW-RT-DC-01; FW-RT-DC-02; FW-RT-DC-03
	146	EH-ACCESS-DC-01; EH-ACCESS-GDL-01; EH-ACCESS-SUIT-01
	161	LB-SHOWSKI-DC-01
	170	RM-TETONSKI-DC-01
RECREATION OPPORTUNITIES	22	FW-FAH-GO-06
	27	FW-AQ-DC-01



Topic	Page	Plan Component(s)
	34	FW-VEGT-DC-04
	52	FW-ROS-DC-01
	57	FW-ROS-SUIT-25; FW-ROS-SUIT-29
	60	FW-REC-DC-01; FW-REC-DC-02; FW-REC-DC-03; FW-REC-DC-04; FW-REC-DC-05; FW-REC-DC-06; FW-REC-DC-07; FW-REC-GO-01; FW-REC-OBJ-01; FW-REC-OBJ-02; FW-REC-OBJ-03
	61	FW-REC-GDL-01; FW-REC-GDL-02; FW-REC-GDL-03; FW-REC-GDL-04; FW-REC-GDL-05; FW-REC-GDL-06; FW-REC-GDL-07; FW-REC-GDL-08; FW-REC-GDL-09; FW-REC-GDL-10; FW-REC-SUIT-01; FW-REC-SUIT-02; FW-REC-SUIT-03
	62	FW-RSUP-DC-01
	66	FW-WILD-DC-05
	68	FW-RECWILD-SUIT-07
	70	FW-WSA-SUIT-06
	77	FW-WSR-GDL-01
	82	FW-CDNST-DC-06
	88	FW-CR-DC-01
	90	FW-LAND-DC-03
	94	FW-RT-GDL-12
	96	FW-CONNECT-GO-09
	102	FW-TIM-GDL-03
	103	FW-FWL-DC-03
	106	FW-EMIN-DC-04
	117	BB-MISCOR-DC-01
	118	BB-MISCOR-DC-02; BB-MISCOR-DC-05; BB-MISCOR-DC-06
	138	DI-SHRA-DC-01; DI-SHRA-DC-02; DI-SHRA-DC-03; DI-SHRA-GO-01; DI-SHRA-SUIT-01
	160	LB-SMITH-DC-01; LB-SMITH-DC-03
	161	LB-SHOWSKI-DC-01; LB-SHOWSKI-DC-02; LB-SMITH-SUIT-01
	162	LB-KHSB-DC-02; LB-TCEF-DC-04
	163	LB-KHSB-SUIT-01
	170	RM-TETONSKI-DC-01; RM-TETONSKI-DC-02; RM-WL-GDL-02
	171	RM-CMA-DC-01; RM-CMA-DC-02
	186	UB-WL-GDL-02
RECREATION SETTINGS	52	FW-ROS-DC-01
	54	FW-ROS-DC-02; FW-ROS-DC-03; FW-ROS-DC-04; FW-ROS-GDL-01; FW-ROS-GDL-02; FW-ROS-GDL-03; FW-ROS-OBJ-01; FW-ROS-OBJ-02; FW-ROS-STD-01; FW-ROS-STD-02; FW-ROS-STD-03; FW-ROS-SUIT-01; FW-ROS-SUIT-02; FW-ROS-SUIT-03; FW-ROS-SUIT-04; FW-ROS-SUIT-05
	55	FW-ROS-DC-05; FW-ROS-DC-06; FW-ROS-GDL-04; FW-ROS-GDL-05; FW-ROS-GDL-06; FW-ROS-GDL-07;

Topic	Page	Plan Component(s)
		FW-ROS-STD-04; FW-ROS-STD-05; FW-ROS-SUIT-06; FW-ROS-SUIT-07; FW-ROS-SUIT-08; FW-ROS-SUIT-09; FW-ROS-SUIT-10; FW-ROS-SUIT-11; FW-ROS-SUIT-12; FW-ROS-SUIT-13; FW-ROS-SUIT-14
	56	FW-ROS-DC-07; FW-ROS-DC-08; FW-ROS-DC-09; FW-ROS-DC-10; FW-ROS-GDL-08; FW-ROS-GDL-09; FW-ROS-GDL-10; FW-ROS-GDL-11; FW-ROS-SUIT-15; FW-ROS-SUIT-16; FW-ROS-SUIT-17; FW-ROS-SUIT-18; FW-ROS-SUIT-19; FW-ROS-SUIT-20
	57	FW-ROS-DC-11; FW-ROS-DC-12; FW-ROS-DC-13; FW-ROS-GDL-12; FW-ROS-GDL-13; FW-ROS-SUIT-21; FW-ROS-SUIT-22; FW-ROS-SUIT-23; FW-ROS-SUIT-24; FW-ROS-SUIT-25; FW-ROS-SUIT-26; FW-ROS-SUIT-27; FW-ROS-SUIT-28; FW-ROS-SUIT-29; FW-ROS-SUIT-30; FW-ROS-SUIT-31; FW-ROS-SUIT-32
	61	FW-REC-GDL-08; FW-REC-GDL-09
	63	FW-ACCESS-DC-03
	64	FW-SCENERY-DC-03
	65	FW-WILD-DC-01
	66	FW-WILD-DC-05; FW-WILD-DC-07; FW-WILD-DC-08
	68	FW-RECWILD-DC-03
	69	FW-WSA-DC-02
	72	FW-IRA-DC-04
	81	FW-CDNST-DC-01; FW-CDNST-DC-03; FW-CDNST-DC-04
	82	FW-CDNST-GDL-01
	86	FW-RNA-SUIT-02
	90	FW-LAND-DC-03
	94	FW-RT-GDL-12
	117	BB-MISCOR-DC-01
	118	BB-MISCOR-DC-02
	138	DI-SHRA-GO-01
	161	LB-SHOWSKI-DC-02
	170	RM-TETONSKI-DC-02
	171	RM-CMA-DC-01; RM-CMA-DC-02; RM-CMA-DC-03
RECREATION SPECIAL USES	34	FW-VEGT-DC-04
	62	FW-RSUP-DC-01; FW-RSUP-DC-02; FW-RSUP-DC-03; FW-RSUP-DC-04; FW-RSUP-DC-05; FW-RSUP-GDL-01
	82	FW-CDNST-STD-03
	88	FW-CR-DC-02
	96	FW-CONNECT-GO-08
RESEARCH	42	FW-VEGF-GDL-03
	72	FW-IRA-DC-02
	86	FW-RNA-DC-01; FW-RNA-SUIT-01; FW-RNA-SUIT-02; FW-RNA-SUIT-03
	88	FW-CR-DC-04; FW-CR-GO-01

Topic	Page	Plan Component(s)
	102	FW-TIM-GDL-03
	103	FW-OFP-DC-02
	106	FW-EMIN-DC-04
	143	EH-WMU-GO-03
	161	LB-TCEF-DC-01
	162	LB-TCEF-DC-02; LB-TCEF-DC-03; LB-TCEF-DC-04; LB-TCEF-SUIT-01
	171	RM-BTM-STD-02
RESEARCH NATURAL AREAS	29	FW-FIRE-GDL-02
	86	FW-RNA-DC-01; FW-RNA-SUIT-01; FW-RNA-SUIT-02; FW-RNA-SUIT-03
	87	FW-RNA-GDL-01
RESILIENCE	15	FW-WTR-DC-01
	16	FW-WTR-DC-13
	17	FW-WTR-GDL-03; FW-WTR-OBJ-02
	21	FW-FAH-DC-01
	30	FW-VEGT-DC-01
	37	FW-VEGF-DC-04; FW-VEGF-DC-05
	38	FW-VEGF-DC-07
	40	FW-VEGF-DC-10
	41	FW-VEGF-DC-13
	42	FW-VEGF-GDL-04
	43	FW-VEGF-GDL-05
	46	FW-INV-DC-01
	60	FW-REC-DC-06
	62	FW-RSUP-DC-05
	97	FW-GRAZ-DC-02; FW-GRAZ-DC-03
	99	FW-TIM-DC-02
	102	FW-TIM-GDL-03
	107	FW-CARB-DC-01
	116	BB-VEGF-DC-01
	124	CA-WTR-GDL-01
	136	DI-WTR-GDL-01
	138	DI-SHRA-DC-03
	144	EH-WTR-GDL-01
	158	LB-WTR-GDL-01
	177	SN-WTR-GDL-01
RESTORATION	16	FW-WTR-GO-03; FW-WTR-OBJ-01
	17	FW-WTR-GDL-04; FW-WTR-OBJ-03
	20	FW-RMZ-STD-03; FW-RMZ-STD-05
	23	FW-CWN-OBJ-02
	25	FW-SOIL-STD-02

Topic	Page	Plan Component(s)
	26	FW-SOIL-GDL-06; FW-SOIL-GDL-07
	28	FW-FIRE-DC-01
	30	FW-VEGT-DC-01
	35	FW-VEGF-DC-01
	44	FW-VEGNF-GDL-01
	45	FW-PRISK-GO-01; FW-PRISK-OBJ-01
	47	FW-INV-GDL-03; FW-INV-GDL-04
	63	FW-ACCESS-GDL-01
	68	FW-RECWILD-SUIT-02
	70	FW-WSA-SUIT-03; FW-WSA-SUIT-04
	77	FW-WSR-GDL-01
	91	FW-LAND USE-GDL-03
	124	CA-WTR-GDL-01
	136	DI-WTR-GDL-01
	144	EH-WMU-SUIT-02; EH-WTR-GDL-01
	158	LB-WTR-GDL-01
	177	SN-WTR-GDL-01
REVEGETATION, REFORESTATION	18	FW-RMZ-OBJ-01
	34	FW-VEGT-GDL-02; FW-VEGT-GDL-03; FW-VEGT-GDL-04; FW-VEGT-OBJ-01
	37	FW-VEGF-DC-05
	61	FW-REC-GDL-07
	91	FW-LAND USE-GDL-02
	100	FW-TIM-STD-02
RIPARIAN MANAGEMENT ZONES	18	FW-RMZ-DC-01; FW-RMZ-DC-02; FW-RMZ-OBJ-01; FW-RMZ-STD-01
	20	FW-RMZ-GDL-01; FW-RMZ-GDL-02; FW-RMZ-GDL-03; FW-RMZ-GDL-04; FW-RMZ-GDL-05; FW-RMZ-GDL-06; FW-RMZ-GDL-07; FW-RMZ-STD-02; FW-RMZ-STD-03; FW-RMZ-STD-04; FW-RMZ-STD-05; FW-RMZ-STD-06; FW-RMZ-STD-07
	21	FW-RMZ-GDL-08; FW-RMZ-GDL-09; FW-RMZ-GDL-10; FW-RMZ-GDL-11; FW-RMZ-GDL-12
	24	FW-CWN-GDL-01
	43	FW-VEGF-GDL-06
	60	FW-REC-OBJ-02
	61	FW-REC-GDL-03; FW-REC-GDL-04; FW-REC-GDL-05; FW-REC-GDL-06
	90	FW-LAND-GDL-02
	91	FW-LAND USE-GDL-03; FW-LAND USE-GDL-04; FW-LAND USE-GDL-05
	93	FW-RT-STD-01; FW-RT-STD-03
	97	FW-GRAZ-GDL-01; FW-GRAZ-GDL-02; FW-GRAZ-STD-02
	98	FW-GRAZ-GDL-04; FW-GRAZ-GDL-06; FW-GRAZ-GDL-07; FW-GRAZ-GDL-09

Topic	Page	Plan Component(s)
	106	FW-EMIN-GDL-01; FW-EMIN-GDL-02
	146	EH-RT-STD-01
RIPARIAN, WETLANDS, AND GROUNDWATER DEPENDENT ECOSYSTEMS	15	FW-WTR-DC-01; FW-WTR-DC-02; FW-WTR-DC-03; FW-WTR-DC-04; FW-WTR-DC-05
	16	FW-WTR-DC-08; FW-WTR-DC-10; FW-WTR-DC-11; FW-WTR-DC-13; FW-WTR-GO-01
	17	FW-WTR-GDL-03; FW-WTR-OBJ-03
	20	FW-RMZ-GDL-03
	21	FW-FAH-DC-01; FW-FAH-DC-03
	30	FW-VEGT-DC-01
	61	FW-REC-GDL-03
	66	FW-WILD-DC-04
	90	FW-LAND-DC-03
	91	FW-LAND USE-GDL-03; FW-LAND USE-GDL-04
	92	FW-RT-OBJ-02
	93	FW-RT-GDL-07; FW-RT-STD-01
	97	FW-GRAZ-DC-04; FW-GRAZ-GDL-01; FW-GRAZ-GDL-02; FW-GRAZ-STD-02
	98	FW-GRAZ-GDL-04; FW-GRAZ-GDL-06; FW-GRAZ-GDL-07; FW-GRAZ-GDL-09
	106	FW-EMIN-GDL-01; FW-EMIN-GDL-02
ROADS - SEE INFRASTRUCTURE - ROADS & TRAILS		
ROCKY MOUNTAIN FRONT CONSERVATION MANAGEMENT AREA	171	RM-CMA-DC-01; RM-CMA-DC-02; RM-CMA-DC-03
	172	RM-CMA-GDL-01; RM-CMA-STD-01; RM-CMA-STD-02; RM-CMA-SUIT-01; RM-CMA-SUIT-02
SAFETY - SEE HEALTH & SAFETY		
SCENIC CHARACTER	54	FW-ROS-GDL-02
	55	FW-ROS-GDL-04; FW-ROS-GDL-06
	56	FW-ROS-GDL-08; FW-ROS-GDL-09; FW-ROS-GDL-11
	57	FW-ROS-GDL-13
	61	FW-REC-GDL-02
	64	FW-SCENERY-DC-01; FW-SCENERY-DC-02; FW-SCENERY-DC-03; FW-SCENERY-GDL-01
	72	FW-IRA-DC-03; FW-IRA-GDL-01
	77	FW-WSR-GDL-01
	81	FW-CDNST-DC-01; FW-CDNST-DC-02
	82	FW-CDNST-GDL-02; FW-CDNST-GDL-03; FW-CDNST-GO-01; FW-CDNST-OBJ-01
	83	FW-CDNST-GDL-06; FW-CDNST-GDL-09
	84	FW-LCNHT-DC-03; FW-LCNHT-GDL-02
	90	FW-LAND-DC-03
	91	FW-LAND USE-GDL-02

Topic	Page	Plan Component(s)
	100	FW-TIM-STD-02; FW-TIM-STD-04
	101	FW-TIM-STD-05
	102	FW-TIM-GDL-03
	118	BB-MISCOR-DC-02; BB-MISCOR-GDL-01; BB-MISCOR-SUIT-01
	138	DI-SHRA-DC-01
	161	LB-SHOWSKI-DC-02; LB-SMITH-GDL-01; LB-SMITH-SUIT-01
	162	LB-KHSB-DC-01; LB-KHSB-DC-02
	163	LB-KHSB-GDL-01; LB-KHSB-SUIT-01
	170	RM-TETONSKI-DC-02
	171	RM-CMA-DC-02
SHOWDOWN SKI AREA	161	LB-SHOWSKI-DC-01; LB-SHOWSKI-DC-02; LB-SHOWSKI-SUIT-01
SKI AREAS	34	FW-VEGT-DC-04
	57	FW-ROS-DC-13
SMITH RIVER CORRIDOR	160	LB-SMITH-DC-01; LB-SMITH-DC-02; LB-SMITH-DC-03; LB-SMITH-GO-01
	161	LB-SMITH-GDL-01; LB-SMITH-SUIT-01
SNAGS	37	FW-VEGF-DC-05
	39	FW-VEGF-DC-08
	40	FW-VEGF-DC-11
	41	FW-VEGF-GDL-01; FW-VEGF-GDL-02
	45	FW-POLL-DC-01
	102	FW-TIM-GDL-04
	117	BB-WL-DC-02
	137	DI-WL-DC-02
	145	EH-WL-DC-02
	186	UB-WL-DC-02
SOIL	17	FW-WTR-OBJ-02; FW-WTR-STD-03
	20	FW-RMZ-GDL-03
	24	FW-SOIL-DC-01
	25	FW-SOIL-DC-02; FW-SOIL-GDL-01; FW-SOIL-GDL-02; FW-SOIL-STD-01; FW-SOIL-STD-02; FW-SOIL-STD-03
	26	FW-SOIL-GDL-03; FW-SOIL-GDL-04; FW-SOIL-GDL-05; FW-SOIL-GDL-06; FW-SOIL-GDL-07
	72	FW-IRA-DC-01
	93	FW-RT-GDL-05
	97	FW-GRAZ-DC-02; FW-GRAZ-DC-03
	98	FW-GRAZ-GDL-08
	100	FW-TIM-STD-01
	107	FW-CARB-DC-01
SOUTH HILLS RECREATION AREA	138	DI-SHRA-DC-01; DI-SHRA-DC-02; DI-SHRA-DC-03; DI-SHRA-GO-01; DI-SHRA-SUIT-01; DI-SHRA-SUIT-02; DI-SHRA-SUIT-03



Topic	Page	Plan Component(s)
SPECIAL USES	34	FW-VEGT-DC-04
	46	FW-POLL-GDL-01
	68	FW-RECWILD-SUIT-05
	69	FW-WSA-SUIT-02
	77	FW-WSR-GDL-01
	83	FW-CDNST-GDL-06; FW-CDNST-GDL-07
	88	FW-CR-DC-02
	96	FW-CONNECT-GO-08
	102	FW-TIM-GDL-03
	105	FW-SU-DC-01; FW-SU-DC-02
	119	BB-SU-GO-01; BB-SU-STD-01
	145	EH-WL-GDL-01
SPECIES OF CONSERVATION CONCERN - SEE AT-RISK SPECIES		
TENDERFOOT CREEK EXPERIMENTAL FOREST	161	LB-TCEF-DC-01
	162	LB-TCEF-DC-02; LB-TCEF-DC-03; LB-TCEF-DC-04; LB-TCEF-SUIT-01; LB-TCEF-SUIT-02; LB-TCEF-SUIT- 03; LB-TCEF-SUIT-04; LB-TCEF-SUIT-05
TETON PASS SKI AREA	170	RM-TETONSKI-DC-01; RM-TETONSKI-DC-02; RM- TETONSKI-SUIT-01
THREATENED, ENDANGERED, PROPOSED AND CANDIDATE SPECIES - SEE AT-RISK SPECIES		
TIMBER	17	FW-WTR-GDL-02
	20	FW-RMZ-GDL-01; FW-RMZ-GDL-03; FW-RMZ-STD-02; FW-RMZ-STD-03; FW-RMZ-STD-04; FW-RMZ-STD-07
	21	FW-RMZ-GDL-09; FW-RMZ-GDL-11
	25	FW-SOIL-GDL-01; FW-SOIL-GDL-02; FW-SOIL-STD- 01; FW-SOIL-STD-02; FW-SOIL-STD-03
	26	FW-SOIL-GDL-03; FW-SOIL-GDL-04; FW-SOIL-GDL- 05; FW-SOIL-GDL-06; FW-SOIL-GDL-07
	34	FW-VEGT-GDL-04; FW-VEGT-OBJ-01
	41	FW-VEGF-GDL-01; FW-VEGF-GDL-02
	42	FW-VEGF-GDL-04
	43	FW-VEGF-GDL-05; FW-VEGF-GDL-06
	47	FW-INV-STD-01
	49	FW-WL-DC-03
	51	FW-WL-GDL-06; FW-WL-GDL-09; FW-WL-GDL-10
	54	FW-ROS-GDL-03; FW-ROS-STD-03
	55	FW-ROS-GDL-05; FW-ROS-GDL-07; FW-ROS-STD-05
	56	FW-ROS-GDL-08; FW-ROS-GDL-10
	57	FW-ROS-GDL-12
	61	FW-REC-GDL-02; FW-REC-SUIT-01
	64	FW-SCENERY-GDL-01

Topic	Page	Plan Component(s)
	66	FW-WILD-SUIT-03
	68	FW-RECWILD-SUIT-04
	69	FW-WSA-SUIT-01
	72	FW-IRA-GDL-01
	73	FW-IRA-SUIT-01
	77	FW-WSR-GDL-01
	82	FW-CDNST-GDL-03
	83	FW-CDNST-GDL-09
	84	FW-LCNHT-SUIT-01
	86	FW-RNA-SUIT-01
	91	FW-LAND USE-GDL-02
	93	FW-RT-GDL-01; FW-RT-GDL-02; FW-RT-GDL-05; FW-RT-GDL-07
	99	FW-TIM-DC-01; FW-TIM-DC-02
	100	FW-TIM-DC-03; FW-TIM-DC-04; FW-TIM-GO-01; FW-TIM-OBJ-01; FW-TIM-OBJ-02; FW-TIM-STD-01; FW-TIM-STD-02; FW-TIM-STD-03; FW-TIM-STD-04
	101	FW-TIM-STD-05; FW-TIM-STD-06; FW-TIM-STD-07; FW-TIM-STD-08
	102	FW-TIM-GDL-01; FW-TIM-GDL-02; FW-TIM-GDL-03; FW-TIM-GDL-04; FW-TIM-STD-09; FW-TIM-STD-10
	104	FW-FWL-GDL-01
	118	BB-MISCOR-SUIT-01
	124	CA-WTR-GDL-01
	136	DI-WTR-GDL-01
	137	DI-WL-GDL-01
	138	DI-SHRA-SUIT-01
	144	EH-WMU-SUIT-01; EH-WMU-SUIT-02; EH-WTR-GDL-01
	158	LB-WTR-GDL-01
	161	LB-SHOWSKI-SUIT-01; LB-SMITH-SUIT-01
	162	LB-TCEF-SUIT-01
	163	LB-KHSB-SUIT-01
	170	RM-TETONSKI-SUIT-01; RM-WL-GDL-02
	171	RM-BTM-SUIT-01
	172	RM-CMA-STD-02; RM-CMA-SUIT-01
	177	SN-WTR-GDL-01
	178	SN-TIM-GDL-01
	186	UB-WL-GDL-01; UB-WL-GDL-02
TRAILS - SEE INFRASTRUCTURE - ROADS & TRAILS	(blank)	(blank)
TRAPPING	103	FW-FWL-DC-02; FW-FWL-DC-04
TRIBAL IMPORTANCE, AREAS OF	29	FW-FIRE-GDL-01
	72	FW-IRA-DC-05

Topic	Page	Plan Component(s)
	88	FW-CR-GO-02; FW-TRIBAL-GO-01
	89	FW-TRIBAL-DC-01; FW-TRIBAL-DC-02; FW-TRIBAL-GO-02
	103	FW-OFP-DC-02
	171	RM-BTM-DC-01; RM-BTM-DC-02; RM-BTM-DC-03; RM-BTM-STD-01; RM-BTM-STD-02; RM-BTM-STD-03; RM-BTM-SUIT-01
UNDERSERVED POPULATIONS	95	FW-CONNECT-DC-03
	96	FW-CONNECT-OBJ-02
VEGETATION FORESTED	30	FW-VEGT-DC-01
	35	FW-VEGF-DC-01
	36	FW-VEGF-DC-02; FW-VEGF-DC-03
	37	FW-VEGF-DC-04; FW-VEGF-DC-05
	38	FW-VEGF-DC-06; FW-VEGF-DC-07
	39	FW-VEGF-DC-08
	40	FW-VEGF-DC-09; FW-VEGF-DC-10; FW-VEGF-DC-11; FW-VEGF-DC-12
	41	FW-VEGF-DC-13; FW-VEGF-GDL-01; FW-VEGF-GDL-02
	42	FW-VEGF-GDL-03; FW-VEGF-GDL-04
	43	FW-VEGF-GDL-05; FW-VEGF-GDL-06
	97	FW-GRAZ-GDL-02
	100	FW-TIM-STD-02; FW-TIM-STD-04
	101	FW-TIM-STD-06
	102	FW-TIM-GDL-01; FW-TIM-GDL-02; FW-TIM-GDL-03
	104	FW-FWL-GDL-01
	107	FW-CARB-DC-01
	116	BB-VEGF-DC-01
	124	CA-VEGF-DC-01
	125	CA-VEGF-DC-02
	130	CR-VEGF-DC-01; CR-VEGF-DC-02; CR-VEGF-DC-03
	136	DI-VEGF-DC-01; DI-VEGF-DC-02
	138	DI-SHRA-DC-03
	144	EH-VEGF-DC-01; EH-VEGF-DC-02; EH-WMU-SUIT-02
	145	EH-WL-DC-02
	152	HW-VEGF-DC-01; HW-VEGF-DC-02; HW-VEGF-DC-03
	159	LB-VEGF-DC-01
	161	LB-SHOWSKI-DC-02
	169	RM-VEGF-DC-01; RM-VEGF-DC-02; RM-VEGF-DC-03
	170	RM-TETONSKI-DC-02
	171	RM-CMA-DC-02
	178	SN-VEGF-DC-01; SN-VEGF-DC-02
	185	UB-VEGF-DC-01; UB-VEGF-DC-02; UB-VEGF-DC-03
	186	UB-WL-DC-02

Topic	Page	Plan Component(s)
VEGETATION MANAGEMENT	17	FW-WTR-GDL-01; FW-WTR-GDL-02; FW-WTR-STD-01
	20	FW-RMZ-GDL-01; FW-RMZ-GDL-03; FW-RMZ-STD-02; FW-RMZ-STD-03; FW-RMZ-STD-04; FW-RMZ-STD-05
	21	FW-RMZ-GDL-09; FW-RMZ-GDL-11
	25	FW-SOIL-GDL-01; FW-SOIL-GDL-02; FW-SOIL-STD-01; FW-SOIL-STD-02; FW-SOIL-STD-03
	26	FW-SOIL-GDL-03; FW-SOIL-GDL-04; FW-SOIL-GDL-05; FW-SOIL-GDL-06; FW-SOIL-GDL-07
	28	FW-FIRE-OBJ-01
	34	FW-VEGT-GDL-04; FW-VEGT-OBJ-01
	41	FW-VEGF-GDL-01; FW-VEGF-GDL-02
	42	FW-VEGF-GDL-04
	43	FW-VEGF-GDL-05; FW-VEGF-GDL-06
	44	FW-VEGNF-GDL-01
	47	FW-INV-STD-01
	49	FW-WL-DC-03
	51	FW-WL-GDL-06; FW-WL-GDL-09; FW-WL-GDL-10
	54	FW-ROS-GDL-03
	55	FW-ROS-GDL-05; FW-ROS-GDL-07
	56	FW-ROS-GDL-08; FW-ROS-GDL-10
	57	FW-ROS-GDL-12
	61	FW-REC-GDL-02; FW-REC-SUIT-01
	64	FW-SCENERY-GDL-01
	68	FW-RECWILD-SUIT-02; FW-RECWILD-SUIT-04
	69	FW-WSA-SUIT-01
	70	FW-WSA-SUIT-03
	72	FW-IRA-GDL-01
	77	FW-WSR-GDL-01
	82	FW-CDNST-GDL-03
	83	FW-CDNST-GDL-09
	84	FW-LCNHT-SUIT-01
	86	FW-RNA-SUIT-01
	91	FW-LAND USE-GDL-02
	93	FW-RT-GDL-01; FW-RT-GDL-02; FW-RT-GDL-05; FW-RT-GDL-07
	103	FW-OFP-GDL-03
	104	FW-FWL-GDL-01
	107	FW-EMIN-GDL-05
	118	BB-MISCOR-SUIT-01
	124	CA-WTR-GDL-01
	136	DI-WTR-GDL-01
	137	DI-WL-GDL-01
	138	DI-SHRA-SUIT-01

Topic	Page	Plan Component(s)
	144	EH-WMU-SUIT-02; EH-WTR-GDL-01
	158	LB-WTR-GDL-01
	161	LB-SHOWSKI-SUIT-01; LB-SMITH-SUIT-01
	162	LB-TCEF-SUIT-01
	163	LB-KHSB-SUIT-01
	170	RM-TETONSKI-SUIT-01; RM-WL-GDL-02
	171	RM-BTM-SUIT-01
	172	RM-CMA-STD-02; RM-CMA-SUIT-01
	177	SN-WTR-GDL-01
	178	SN-TIM-GDL-01
	186	UB-WL-GDL-01; UB-WL-GDL-02
VEGETATION NONFORESTED	15	FW-WTR-DC-04
	25	FW-SOIL-DC-02
	30	FW-VEGT-DC-01
	44	FW-VEGNF-DC-01; FW-VEGNF-DC-02; FW-VEGNF-DC-03; FW-VEGNF-DC-04; FW-VEGNF-DC-05; FW-VEGNF-GDL-01
	49	FW-WL-DC-06
	97	FW-GRAZ-DC-02; FW-GRAZ-DC-04; FW-GRAZ-GDL-02
	98	FW-GRAZ-GDL-08
	116	BB-VEGNF-DC-01
	117	BB-VEGNF-DC-02
	125	CA-VEGNF-DC-01; CA-VEGNF-DC-02; CA-VEGNF-DC-03
	130	CR-VEGNF-DC-01
	137	DI-VEGNF-DC-01; DI-VEGNF-DC-02
	144	EH-WMU-SUIT-02
	145	EH-VEGNF-DC-01; EH-VEGNF-DC-02
	152	HW-VEGNF-DC-01; HW-VEGNF-DC-02; HW-WL-DC-01
	160	LB-VEGNF-DC-01; LB-WL-DC-01
	169	RM-VEGNF-DC-01
	178	SN-VEGNF-DC-01; SN-VEGNF-GDL-01
	185	UB-VEGNF-DC-01
	186	UB-VEGNF-DC-02
VEGETATION TERRESTRIAL	24	FW-SOIL-DC-01
	29	FW-FIRE-GDL-04
	30	FW-VEGT-DC-01
	33	FW-VEGT-DC-02; FW-VEGT-DC-03
	34	FW-VEGT-DC-04; FW-VEGT-GDL-01; FW-VEGT-GDL-02; FW-VEGT-GDL-03; FW-VEGT-GDL-04; FW-VEGT-OBJ-01
	49	FW-WL-DC-02; FW-WL-DC-03

Topic	Page	Plan Component(s)
	60	FW-REC-DC-06
	62	FW-RSUP-DC-05
	65	FW-WILD-DC-02
	72	FW-IRA-DC-02
	95	FW-CONNECT-DC-02
	101	FW-TIM-STD-07
	103	FW-OFP-DC-01
	138	DI-SHRA-DC-03
	144	EH-WMU-SUIT-02
	161	LB-SHOWSKI-DC-02; LB-TCEF-DC-01
	170	RM-TETONSKI-DC-02
	171	RM-CMA-DC-02
WATER QUALITY	15	FW-WTR-DC-05; FW-WTR-DC-06
	16	FW-WTR-DC-10; FW-WTR-GO-03
	17	FW-WTR-GDL-04; FW-WTR-STD-02
	18	FW-RMZ-DC-02
	21	FW-FAH-DC-02; FW-RMZ-GDL-12
	23	FW-FAH-GDL-04
	60	FW-REC-DC-04
	61	FW-REC-GDL-03
	66	FW-WILD-GDL-01
	72	FW-IRA-DC-05
	77	FW-WSR-GDL-01
	90	FW-LAND-DC-03
	92	FW-RT-DC-04
	106	FW-EMIN-GDL-02
	124	CA-WTR-DC-01; CA-WTR-GDL-01; CA-WTR-GDL-02; CA-WTR-GO-01
	136	DI-WTR-DC-01; DI-WTR-GDL-01; DI-WTR-GO-01
	144	EH-WTR-DC-01; EH-WTR-GDL-01; EH-WTR-GO-01
	159	LB-WTR-DC-01; LB-WTR-GO-01
	177	SN-WTR-DC-01; SN-WTR-GO-01
WATERSHED	15	FW-WTR-DC-01; FW-WTR-DC-02; FW-WTR-DC-03; FW-WTR-DC-04; FW-WTR-DC-05; FW-WTR-DC-06; FW-WTR-DC-07
	16	FW-WTR-DC-08; FW-WTR-DC-09; FW-WTR-DC-10; FW-WTR-DC-11; FW-WTR-DC-12; FW-WTR-DC-13; FW-WTR-DC-14; FW-WTR-GO-01; FW-WTR-GO-02; FW-WTR-GO-03; FW-WTR-OBJ-01
	17	FW-WTR-GDL-01; FW-WTR-GDL-02; FW-WTR-GDL-03; FW-WTR-GDL-04; FW-WTR-OBJ-02; FW-WTR-OBJ-03; FW-WTR-STD-01; FW-WTR-STD-02; FW-WTR-STD-03; FW-WTR-STD-04
	21	FW-FAH-DC-01; FW-FAH-DC-02
	72	FW-IRA-DC-01



Topic	Page	Plan Component(s)
	91	FW-LAND USE-GDL-03; FW-LAND USE-GDL-04
	92	FW-RT-OBJ-01
	93	FW-RT-GDL-01; FW-RT-GDL-03; FW-RT-GDL-04; FW-RT-GDL-06; FW-RT-GDL-08; FW-RT-STD-02
	94	FW-RT-GDL-09; FW-RT-GDL-11
	95	FW-CONNECT-DC-02
	97	FW-GRAZ-DC-03; FW-GRAZ-GDL-01
	98	FW-GRAZ-GDL-08
	100	FW-TIM-STD-01
	124	CA-WTR-DC-01; CA-WTR-GDL-01; CA-WTR-GDL-02
	136	DI-WTR-DC-01; DI-WTR-GDL-01; DI-WTR-GO-01
	144	EH-WTR-DC-01; EH-WTR-GDL-01; EH-WTR-GO-01
	158	LB-WTR-GDL-01; LB-WTR-GDL-02
	159	LB-WTR-DC-01; LB-WTR-GO-01
	177	SN-WTR-DC-01; SN-WTR-GDL-01; SN-WTR-GO-01
	178	SN-WTR-GDL-02
WATERSHED CONDITION FRAMEWORK	16	FW-WTR-OBJ-01
	17	FW-WTR-OBJ-02
WESTERN TOAD	50	FW-WL-GDL-03; FW-WL-GDL-04; FW-WL-STD-01
WESTSLOPE CUTTHROAT TROUT	22	FW-FAH-GO-03
	92	FW-RT-OBJ-02
	103	FW-FWL-DC-05
WETLANDS - SEE RIPARIAN, WETLANDS, AND GROUNDWATER DEPENDENT ECOSYSTEMS		
WHITEBARK PINE	30	FW-VEGT-DC-01
	35	FW-VEGF-DC-01
	36	FW-VEGF-DC-02
	38	FW-VEGF-DC-07
	45	FW-PRISK-DC-02; FW-PRISK-OBJ-01
	116	BB-VEGF-DC-01
	124	CA-VEGF-DC-01
	130	CR-VEGF-DC-02
	136	DI-VEGF-DC-02
	144	EH-VEGF-DC-02
	159	LB-VEGF-DC-01
	169	RM-VEGF-DC-02
	185	UB-VEGF-DC-02
WILDERNESS STUDY AREAS	69	FW-WSA-DC-01; FW-WSA-DC-02; FW-WSA-SUIT-01; FW-WSA-SUIT-02
	70	FW-WSA-SUIT-03; FW-WSA-SUIT-04; FW-WSA-SUIT-05; FW-WSA-SUIT-06; FW-WSA-SUIT-07
WILDERNESS, DESIGNATED	27	FW-AQ-DC-01
	29	FW-FIRE-GDL-02

Topic	Page	Plan Component(s)
	54	FW-ROS-DC-02; FW-ROS-SUIT-02
	65	FW-WILD-DC-01; FW-WILD-DC-02; FW-WILD-DC-03
	66	FW-WILD-DC-04; FW-WILD-DC-05; FW-WILD-DC-06; FW-WILD-DC-07; FW-WILD-DC-08; FW-WILD-DC-09; FW-WILD-GDL-01; FW-WILD-GDL-02; FW-WILD-GO-01; FW-WILD-GO-02; FW-WILD-GO-02; FW-WILD-SUIT-01; FW-WILD-SUIT-02; FW-WILD-SUIT-03; FW-WILD-SUIT-04
	80	FW-NRT-DC-01
	119	BB-SU-GO-01; BB-SU-STD-01
WILDERNESS, RECOMMENDED	27	FW-AQ-DC-01
	29	FW-FIRE-GDL-02
	54	FW-ROS-SUIT-02
	68	FW-RECWILD-DC-01; FW-RECWILD-DC-02; FW-RECWILD-DC-03; FW-RECWILD-SUIT-01; FW-RECWILD-SUIT-02; FW-RECWILD-SUIT-03; FW-RECWILD-SUIT-04; FW-RECWILD-SUIT-05; FW-RECWILD-SUIT-06; FW-RECWILD-SUIT-07; FW-RECWILD-SUIT-08
	138	DI-SHRA-SUIT-03
WILDFIRE	17	FW-WTR-STD-04
	20	FW-RMZ-GDL-05; FW-RMZ-GDL-06; FW-RMZ-STD-06
	21	FW-RMZ-GDL-08; FW-RMZ-GDL-10
	23	FW-FAH-GDL-03
	27	FW-AQ-GO-01
	28	FW-FIRE-DC-01; FW-FIRE-DC-02; FW-FIRE-GO-01; FW-FIRE-GO-02; FW-FIRE-STD-01
	29	FW-FIRE-GDL-01; FW-FIRE-GDL-02; FW-FIRE-GDL-03; FW-FIRE-GDL-04
	30	FW-VEGT-DC-01
	34	FW-VEGT-GDL-04
	38	FW-VEGF-DC-07
	42	FW-VEGF-GDL-04
	49	FW-WL-DC-03
	65	FW-WILD-DC-02
	68	FW-RECWILD-DC-02
	69	FW-WSA-DC-01
	72	FW-IRA-DC-02
	83	FW-CDNST-GDL-10
	95	FW-CONNECT-DC-02
	99	FW-TIM-DC-02
	138	DI-SHRA-DC-03
	171	RM-BTM-DC-02
WILDLAND URBAN INTERFACE	28	FW-FIRE-DC-02; FW-FIRE-OBJ-01
	43	FW-VEGF-GDL-06
WILDLIFE	20	FW-RMZ-STD-04

Topic	Page	Plan Component(s)
	37	FW-VEGF-DC-05
	40	FW-VEGF-DC-09; FW-VEGF-DC-11
	41	FW-VEGF-GDL-01
	43	FW-VEGF-GDL-06
	49	FW-WL-DC-01; FW-WL-DC-02; FW-WL-DC-03; FW-WL-DC-04; FW-WL-DC-05; FW-WL-DC-06
	50	FW-WL-DC-07; FW-WL-DC-08; FW-WL-GDL-01; FW-WL-GDL-02; FW-WL-GDL-03; FW-WL-GDL-04; FW-WL-GDL-05; FW-WL-GO-01; FW-WL-GO-02; FW-WL-GO-03; FW-WL-GO-04; FW-WL-GO-05; FW-WL-STD-01
	51	FW-WL-GDL-06; FW-WL-GDL-07; FW-WL-GDL-08; FW-WL-GDL-09; FW-WL-GDL-10; FW-WL-GDL-11; FW-WL-GDL-12; FW-WL-GDL-13; FW-WL-GDL-14; FW-WL-GDL-15
	61	FW-REC-GDL-07
	62	FW-RSUP-GDL-01
	66	FW-WILD-GO-01
	72	FW-IRA-DC-01
	77	FW-WSR-GDL-01
	81	FW-CDNST-DC-02
	82	FW-CDNST-GO-01
	90	FW-LAND-DC-03
	92	FW-RT-GO-03
	94	FW-BRDG-DC-02; FW-BRDG-GDL-01; FW-RT-GDL-12
	95	FW-CONNECT-DC-02
	97	FW-GRAZ-DC-02; FW-GRAZ-GDL-03; FW-GRAZ-STD-02
	98	FW-GRAZ-GDL-05
	100	FW-TIM-STD-02; FW-TIM-STD-04
	102	FW-TIM-GDL-03; FW-TIM-GDL-04
	103	FW-FWL-DC-01; FW-FWL-DC-02; FW-FWL-DC-03; FW-FWL-DC-04
	104	FW-FWL-GDL-01; FW-FWL-GDL-02
	106	FW-EMIN-GDL-01; FW-EMIN-GDL-02
	117	BB-WL-DC-01; BB-WL-DC-02; BB-WL-STD-01
	118	BB-FWL-DC-01
	125	CA-VEGNF-DC-02; CA-WL-DC-01
	130	CR-FWL-DC-01
	137	DI-WL-DC-01; DI-WL-DC-02; DI-WL-GDL-01; DI-WL-GO-01
	143	EH-WMU-DC-01; EH-WMU-GO-01; EH-WMU-GO-02; EH-WMU-GO-03; EH-WMU-GO-04
	144	EH-WMU-GDL-01; EH-WMU-SUIT-01; EH-WMU-SUIT-02; EH-WMU-SUIT-03
	145	EH-WL-DC-01; EH-WL-DC-02; EH-WL-GDL-01; EH-WL-STD-01

Topic	Page	Plan Component(s)
	146	EH-ACCESS-GDL-01; EH-RT-GDL-01; EH-RT-STD-01; EH-WL-GDL-02
	147	EH-EMIN-GDL-02
	152	HW-WL-DC-01
	153	HW-FWL-DC-01
	160	LB-WL-DC-01; LB-WL-DC-02; LB-WL-STD-01
	169	RM-WL-DC-01
	170	RM-WL-DC-02; RM-WL-DC-03; RM-WL-GDL-01; RM-WL-GDL-02; RM-WL-STD-01
	171	RM-BTM-SUIT-01; RM-CMA-DC-01
	178	SN-FWL-DC-01; SN-FWL-DC-02; SN-TIM-GDL-01
	185	UB-VEGF-DC-03
	186	UB-WL-DC-01; UB-WL-DC-02; UB-WL-DC-03; UB-WL-GDL-01; UB-WL-GDL-02
WOLVERINE	137	DI-WL-DC-01
	169	RM-WL-DC-01
	186	UB-WL-DC-01
YOUTH	95	FW-CONNECT-GO-05
	96	FW-CONNECT-GO-09; FW-CONNECT-OBJ-02; FW-CONNECT-OBJ-03

Page intentionally left blank.